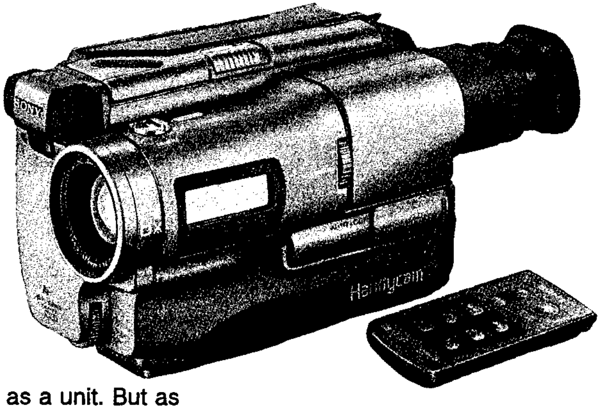
V13068

CCD-TR8E
RMT-703

SERVICE MANUAL

AEP Model
UK Model



Remote commander is available as a unit. But as individual parts the battery case lid of commander is only avaiable.

video Hi8
Handycam
FL MECHANISM

For MECHANISM ADJUSTMENTS, refer to the "8 mm Video MECHANICAL ADJUSTMENT MANUAL Ⅱ " (9-972-705-11).

SPECIFICATIONS

System

Video recording system	Four Rotary heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette (Hi8 or standard 8 mm)
Tape speed	SP mode: Approx. 20.051 mm (13/16 in)/second LP modo: Approx 10.058 mm (13/32 in)/second
Recording time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Playback time	SP mode: 1 hour and 30 minutes (E5/P5-90) LP mode: 3 hours (E5/P5-90)
Fast-forward/rewind time	Approx. 8.5 min. (E5/P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (monochrome)
Lens	Combined 8 x power zoom lens f=5.9 to 47.2 mm (1/4 to 1 7/8 inches) 42 to 336 mm (1 11/16 to 13 1/4 inches) when converted into a 35-mm still camera F 1.4 to 2.2 Filter diameter 37 mm (1 1/2 inches) TTL autofocus system inner focus wide macro system
Colour temperature	Auto
Minimum illumination	3 lx (F 1.4)
Illumionation range	3 lx to 100,000 lx
Recommended illumination	More than 100 lx

Input and output connectors

S video output	4-pin mini DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced,
Video output	Phono jack, 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio output	Phono jacks (2: stereo L and R), −7.5 dBs, (at load impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT	Special mini-jack, DC 5 V
Headphones jack	Stereo mini-jack (ø 3.5)
Remote jack	Stereo mini-mini-jack (ø 2.5)
MIC jack	Stereo mini-jack, −66 dBs low impedance with 2.5 to 3 V DC, output impedance 6.8 kilohms (ø 3.5)
MIC DC OUT	Special minijack, DC 5 V
Handycam Station terminal	20pin special connector

– Continued on next page –

Hi8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

General

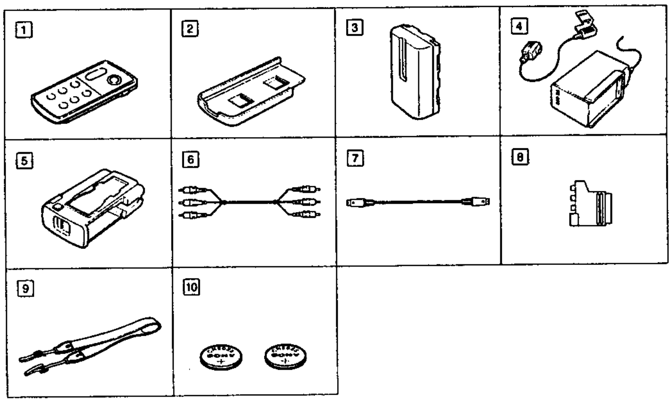
Power requirements	7.2 V (battery pack) 6.5 V (AC power adaptor)
Power consumption	5.3 W (camera recording) including the viewfinder
Installation	Vertically, Horizontally
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Dimensions	Approx. 92 x 102 x 195 mm (w/h/d) (3 5/8 x 4 1/8 x 7 3/4 inches)
Mass	Approx. 690 g (1 lb 8 oz) excluding the battery pack, lithium battery, cassette, and shoulder strap Approx. 870 g (1 lb 15 oz) including the battery pack NP-500, lithium battery CR2025, cassette E5-60, and shoulder strap
Microphone	Electret condenser microphone, stereo type

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Design and specifications are subject to change without notice.

Supplied accessories



1. **Wireless Remote Commander (1) (p.22, 45)**
2. **Remote Commander Holder (1) (p.46)**
3. **NP-500 Battery Pack (1) (p.5)**
4. **AC-V500 AC power adaptor (1) (p.5, 24)**
5. **HSA-V500 Handycam Station (1) (p.5, 19)**
6. **A/V connecting cable (1) (p.20)**
7. **S video connecting cable (1) (p.20)**
8. **21-pin adaptor (1) (p.20)**
9. **Shoulder strap (1) (p.46)**
10. **CR2025 Lithium Battery (2) (p.10)**
    These are already inserted in the camcorder and the Remote Commander.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

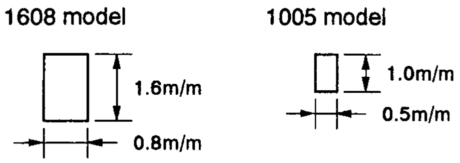
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

USING THIS SERVICE MANUAL

This unit uses the 1005 model chip part. They are smaller than the previous ones (1608 model, etc.) used, and have enabled the unit to achieve higher accuracy.

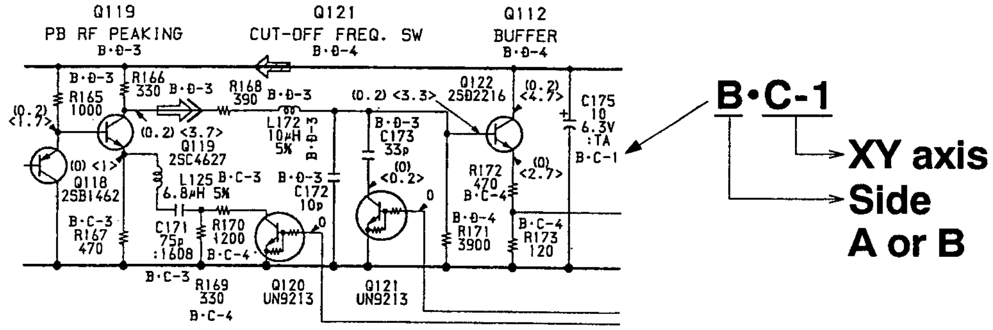

1608 model
1005 model
1.6m/m
0.8m/m
1.0m/m
0.5m/m

The following details have been included in this service manual. Refer to them in repairs.

1. Addresses indicating locations of parts on the VC-129 board

As the VC-129 board, the main board of the unit, mounts many parts, the following addresses have been displayed so that parts can be located quickly.

1-1. Addresses of all parts are displayed in the schematic diagrams for the VC-129 board as follows. (Red)


Q119
PB RF PEAKING
B·D-3
Q121
CUT-OFF FREQ. SW
B·D-4
Q112
BUFFER
B·D-4
Q118
2SB1462
Q119
2SC4627
Q122
2SD2216
Q120
UN9213
Q121
UN9213
R165
1000
R166
330
R168
390
R167
470
R169
330
R170
1200
R171
3900
R172
470
R173
120
L172
10μH
L125
6.8μH
C171
75p
C172
10p
C173
33p
C175
10
6.3V
B•C-1
XY axis
Side
A or B

1-2. An actual-sized transparent sheet showing addresses is provided

An actual-sized sheet showing addresses has been attached to the bottom of the color reproduction frame sheet at the end of this service manual. Tear it off and use.
Some addresses are also printed by silkscreen process on the board.

1-3. Address frames are displayed in printed wiring boards

Two types of printed wiring boards have been provided-the original ones with patterns and those without patterns.
Address frames are also shown in the printed wiring boards in red.

1-4. Resistors and capacitors are differentiated from other parts by colors in printed wiring boards.

Resistors and capacitors have been colored red so that parts can be distinguished easily.

1-5. Addresses are displayed in Electrical Parts List

Addresses have been displayed according to the numbers of diagrams in the Electrical Parts List.

2. Troubleshooting is included in circuit diagrams

Troubleshooting and outlines of adjustments have been added to important points in the diagrams according to the flow of the signals.
Also, schematic diagrams have not been divided into smaller sections but provided for each system.

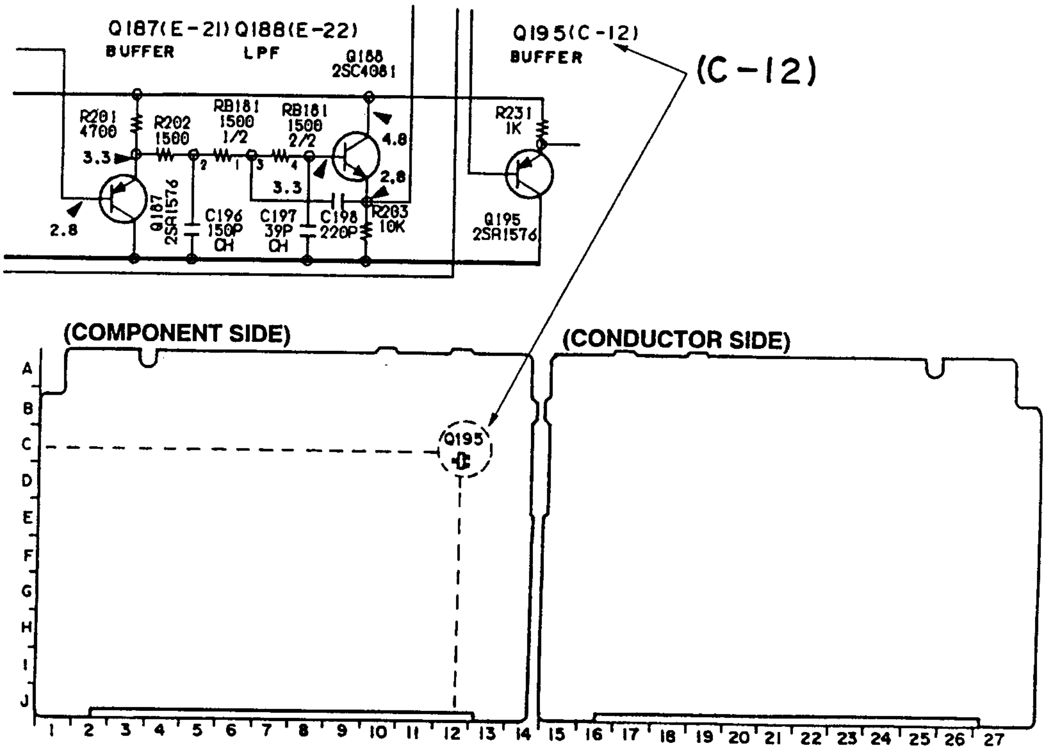
— Continued on next page —

3. Adjustments

1. The text has been simplified and reduced. More tables have been used instead for descriptions.
2. Items that need to be adjusted when replaced, such as lens, imager, etc. have been listed.
3. Related adjustments have been listed below each adjustment.

[DISPLAY OF SEMICONDUCTOR LOCATIONS OTHER THAN VC-129 BOARD]

The locations for mounting semiconductors (IC, transistor, diode) other than the VC-129 board are shown in red in circuit diagrams, as shown in the figure below. This enables semiconductors to be located easily in the printings when repairing. Please use them in repairs.



Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
4.8
3.3
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
Q195(C-12)
BUFFER
(C-12)
R231
1K
Q195
2SA1576
(COMPONENT SIDE)
(CONDUCTOR SIDE)
A
B
C
D
E
F
G
H
I
J
Q195
1
2
3
4
5
6
7
8
9
10
11
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27

[HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

Check for Head Clogs During Recording

① Use a blank tape, record a short section, then press the stop button to stop.
② Set to recording mode again.
③ If the [❖] mark is flashing in the viewfinder at this time, head clogs are occurred.

Check During Playback of a Tape

① Play back a pre-recorded tape and display the image on a TV screen.
② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

Remedy

[Cleaning method using a cleaning tape]

- Use the Cleaning Tape. (Please follow the instructions attached to the cleaning tape.)

TABLE OF CONTENTS

Section Title Page

1. GENERAL

Charging and Installing the NP-500 Battery Pack ········ 8
Setting the Date and Time ········ 10
Inserting a Cassette ········ 11
Adjusting the Viewfinder Lens ········ 12
Hints for Better Shooting ········ 12
Camera Recording ········ 13
Connections for Playback ········ 15
Playing Back a Tape ········ 16
Using House Current ········ 17
Selecting Automatic or Manual Adjustment Modes ········ 18
Focusing Manually ········ 18
Adjusting the Exposure ········ 19
Using the PROGRAM AE Function ········ 20
Changing the Mode Settings ········ 20
Editing onto Another Tape ········ 22
Usable Cassettes and Recording/Playback Modes ········ 23
Changing the Lithium Batteries ········ 23
Maintenance Information and Precautions ········ 24
Using Your Camcorder Abroad ········ 26
Identifying the Parts ········ 26
Indications in the Display Window and the Viewfinder ········ 29

2. DISASSEMBLY

2-1. Removal of Bottom Cabinet Assembly ········ 30
2-2. Removal of F Panel Assembly ········ 30
2-3. Removal of Cabinet (L) Assembly and Cassette Case ········ 31
2-4. Removal of Cabinet (R) Assembly ········ 31
2-5. Removal of Control Switch Block (FK-33 Board), Terminal Board ········ 32
2-6. Removal of Control Switch Block (CF-33 Board), Battery Holder Assembly (FU-111 Board) ········ 32
2-7. Removal of EVF Assembly (VF-55, VF-56 Boards) ········ 33
2-8. Opening of VC-129 Board (Service Position) ········ 33
2-9. Removal of Lens Assembly (LSV-100A) ········ 34
2-10. Removal of Cassette Compartment Holder Assembly ········ 34
2.11. Mounting of Iris Meter (IRX-002) ········ 35
2-12. Mounting of Stepping Motor (SPB-01S01N) ········ 35
2-13. Mounting of MR Sensor Section When Mounting M Flexible Block Assembly ········ 36

3. DIAGRAMS

3-1. Circuit Boards Location ········ 37
3-2. Overall Block Diagram ········ 38
3-3. Camera Block Diagram ········ 42
3-4. Camera Micro Processor (VC-129 Board IC653: MC68HC11FU) Pin Functions ········ 47
3-5. Video Block Diagram ········ 49
3-6. Servo/System Control Block Diagram ········ 54
3-7. Auto Focus Micro Processor (LD-63 Board IC751: CXP80624AR) Pin Functions ········ 59
3-8. Mechanism Control Micro Processor (VC-129 Board IC201: CXP80624) Pin Functions ········ 62
3-9. Mode Control Micro Processor (VC-129 Board IC903: MB89092PFV-G-112A) Pin Functions ········ 65
3-10. Interface ········ 69
  3-10-1. System Control – Video and Audio Block Interface (VC-129 Board) ········ 69
  3-10-2. System Control – Servo Block Interface (VC-129 Board) ········ 73
3-11. Audio Block Diagram ········ 76
3-12. EVF Block Diagram ········ 79
3-13. Power Block Diagram ········ 83

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram ········ 87
4-2. Printed Wiring Boards and Schematic Diagrams ········ 91
- CD-101, VC-129 (Camera 1) Boards ········ 92
- LD-63 Board ········ 100
- VC-129 (Camera, Video, Servo/System Control) Board ········ 108
- VC-129 (Video 1 (RP, RF)) Board ········ 117
- VC-129 (Video 2 (SR)) Board ········ 121
- VC-129 (Video 3 (I/O)) Board ········ 126
- FP-423, VC-129 (Servo Control (SS)) Boards ········ 129
- RE-22, RE-23, CF-33, FK-33, DB-10, VC-129 (System Control (FD)) Boards ········ 136
- AU-146, MA-164, EZ-3, JK Boards ········ 145
- VF-55, VF-56 Boards ········ 164
- DD-54, FU-111 Boards ········ 171

4-3. Semiconductor ········ 180

Section Title Page

5. EXPLODED VIEWS

5-1. Cabinet (L) and F Panel Assemblies ······ 183
5-2. Cabinet (R) Assembly ······ 184
5-3. Main Boards Assembly ······ 185
5-4. Cassette Compartment Holder Assembly ······ 186
5-5. LS Chassis Assembly ······ 187
5-6. Mechanism Chassis Assembly (1) ······ 188
5-7. Mechanism Chassis Assembly (2) ······ 189
5-8. Lens device Assembly (LSV-100A) ······ 190

6. ELECTRICAL PARTS LIST ······ 191

HARDWARE LIST ······ 213

7. CAMERA SECTION ADJUSTMENT

7-1. Preparations Before Adjustment (Camera Section) ······ 214
  7-1-1. List of Service Tools ······ 214
  7-1-2. Preparations ······ 216
  7-1-3. Precautions ······ 217
  1. Switch settings ······ 217
  2. Adjusting Procedure ······ 217
  3. Subject ······ 217
  7-1-4. Adjusting Remote Commander ······ 218
  1. Using the adjusting remote commander ······ 218
  2. Precautions upon using the adjusting remote commander ······ 218
  7-1-5. Page F Address List ······ 219
  7-1-6. Page 6, Page 2 Address List ······ 225
  1. Page 6 ······ 225
  2. Page 2 ······ 226
  7-1-7. Adjustment Connector ······ 226
  7-1-8. Data Processing ······ 227
7-2. Camera System Adjustment ······ 228
  1. Adjusting points when replacing main parts ······ 228
  2. Power Supply Voltage Check (DD-54 board) ······ 228
  3. Page F Data Initialization ······ 229
  4. Page F Data Modification ······ 230
  5. 28 MHz Origin Oscillation Adjustment (VC-129 board) ······ 231
  6. V SUB Adjustment (VC-129 board) ······ 232
  7. VRG Adjustment (VC-129 board) ······ 233
  8. CCD Imager Correction Data Writing ······ 234
  9. HALL Adjustment ······ 235
  10. Flange Back Adjustment ······ 237
  11. Flange Back Check ······ 238
  12. SYNC Level Adjustment (VC-129 board) ······ 239
  13. BURST Level Adjustment (VC-129 board) ······ 240
  14. Picture Frame Setting ······ 241
  15. IRIS IN/OUT Adjustment ······ 242
  16. Max Gain Adjustment (VC-129 board) ······ 243
  17. Pre-white Balance Adjustment ······ 244
  18. Auto White Balance Reference Date Input ······ 245
  19. Auto White Balance Adjustment ······ 246
  20. White Balance Check ······ 247
  21. Color Reproductivity Adjustment ······ 248
  22. Linear Matrix Adjustment ······ 249

Section Title Page

7-3. Electronic Viewfinder System Adjustments ······ 251
  7-3-1. Horizontal Slant Adjustment ······ 251
  7-3-2. Centering Adjustment ······ 251
  7-3-3. Focus Adjustment ······ 251
  7-3-4. Aberration Adjustment ······ 252
  7-3-5. Horizontal Oscillation Frequency Adjustment (VF-55 board) ······ 252
  7-3-6. Horizontal Amplitude Adjustment (VF-55 board) ······ 253
  7-3-7. Vertical Amplitude Adjustment (VF-55 board) ······ 254
  7-3-8. Brightness, Contrast Adjustments (VF-55, VF-56 boards) ······ 254
  7-3-9. Horizontal Amplitude, Vertical Amplitude, Focus Check ······ 254
7-4. Arrangement Diagram for Adjustment Parts ······ 256

8. MECHANICAL SECTION ADJUSTMENT

8-1. Operating with the Cassette Compartment Holder Assembly Removed (Refer to Fig. 8-1.) ······ 261
8-2. Tape Path Adjustment ······ 263

9. VIDEO SECTION ADJUSTMENT

9-1. Preparations Before Adjustment ······ 264
  9-1-1. Equipments used ······ 264
  9-1-2. Precautions Upon Adjustments ······ 264
  9-1-3. How to Set the REC Mode ······ 265
  9-1-4. Connector for Adjustments (CN002 of VC-129 board) ······ 265
  9-1-5. Connection of Equipments ······ 266
  9-1-6. Checking the Input Signals ······ 267
  1. S VIDEO Input ······ 267
  2. VIDEO Input ······ 267
  9-1-7. Alignment Tape ······ 268
  9-1-8. Output Level and Impedance ······ 269
  9-1-9. Recording Mode (Normal/Hi8) Switching ······ 269
  9-1-10. Service Mode ······ 270
  1. Setting the Service mode ······ 270
  2. Page D Write Protect ······ 273
  3. Test Mode Setting ······ 273
  4. Emergency code ······ 273
  5. Emergency mode ······ 274
  6. Bit Value Discrimination ······ 274
  7. Mode Controller Input Check ······ 275
  8. White Balance Mode Switching ······ 276
  9. Zoom Position Check ······ 276
  10. LCD, LED Check ······ 276
  11. Key Input Check ······ 277
  12. Key Input Check (A/D Port) ······ 277
  13. Wireless Remote Commander Reception Contents Check ······ 278
  14. Battery Voltage Check ······ 278
  15. Mechanism Section Switch, etc. Check ······ 279
  16. Mechanism Controller Input/Output Check ······ 279
  17. Mechanism Controller Input Check ······ 280
  18. Mechanism Controller A/D Port Input Voltage Check ······ 280
  19. Tape Top/End Sensor Check ······ 281

Section Title Page

20. Individual Operations of the Drum, Capstan, and Loading Motor ······ 281
21. Page D Address List ······ 282
9-2. Adjusting Points when Replacing Main Parts ······ 286
1. When Replacing Drum ······ 286
2. When Replacing Capstan Motor ······ 286
9-3. Power Supply System Adjustments ······ 286
1. Oscillator Frequency Check (DD-54 board) ······ 286
2. Power Supply Voltage Check (DD-54 board) ······ 286
9-4. System Control System Adjustments ······ 287
1. Page D Initial Value Input ······ 287
2. Battery End Adjustment ······ 288
9-5. Servo System Adjustments ······ 289
1. Switching Position Adjustment (VC-129 board) ······ 289
2. CAP FG Duty Adjustment (VC-129 board) ······ 290
9-6. Video Adjustments ······ 291
1. PB RF Equalizer f_0 Adjustment (VC-129 board) ······ 292
2. Playback Frequency Characteristics Adjustment (VC-129 board) ······ 293
3. Flying Erase Check (VC-129 board) ······ 294
4. VXO Oscillation Frequency Check (VC-129 board) ······ 294
5. SYNC AGC Adjustment (VC-129 board) ······ 295
6. IR Adjustment (VC-129 board) ······ 296
7. Chroma Comb Filter Adjustment (VC-129 board) ······ 297
8. Emphasis Input Level Adjustment (VC-129 board) ······ 298
9. PB Y Level Adjustment (VC-129 board) ······ 299
10. Normal Mode Y FM Deviation Adjustment (VC-129 board) ······ 300
11. Normal Mode Y FM Carrier Frequency Adjustment (VC-129 board) ······ 301
12. Hi8 Mode Y FM Deviation Adjustment (VC-129 board) ······ 302
13. Hi8 Mode Y FM Carrier Frequency Adjustment (VC-129 board) ······ 303
14. REC Y RF Level Adjustment (VC-129 board) ······ 304
15. Chroma Emphasis f_0 Adjustment (VC-129 board) ······ 305
16. REC C RF Level Adjustment (VC-129 board) ······ 306
17. REC C Preset Adjustment (VC-129 board) ······ 307
18. Hi8 MP Tape REC C Level Adjustment (VC-129 board) ······ 309
19. Normal MP Tape REC C Level Adjustment (VC-129 board) ······ 310
20. REC ATF Level Check (VC-129 board) ······ 311
21. Chroma Flicker Check and Adjustment (VC-129 board) ······ 312
22. REC AFM Level Check (VC-129 board) ······ 314
23. Chroma Comb Filter Fine Adjustment (VC-129 board) ······ 315
24. Delay Burst Phase Adjustment (VC-129 board) ······ 316
25. Character Generator Oscillation Frequency Adjustment (VC-129 board) ······ 317
9-7. Audio System Adjustment ······ 318
1. 1.5 MHz Carrier Frequency Check (AU-146 board) ······ 319
2. 1.7 MHz Carrier Frequency Check (AU-146 board) ······ 319
3. 1.5 MHz Record Level Check (AU-146 board) ······ 319
4. 1.7 MHz Recording Level Check (AU-146 board) ······ 319
5. E-E Output Level Check (AU-146 board) ······ 320
6. REC Matrix L-R Adjustment (AU-146 board) ······ 320
7. REC Matrix L+R Check (AU-146 board) ······ 321
8. IR Adjustment (AU-146 board) ······ 322
9. 1.5 MHz Deviation Adjustment ······ 322
10. 1.7 MHz Deviation Adjustment (AU-146 board) ······ 323
11. PB Matrix L Adjustment ······ 324
12. PB Matrix R Check ······ 324
13. Overall Level Characteristics, Distortion Rate Check ······ 325
14. Separation Check ······ 325
15. Overall Noise Level Check ······ 325
9-8. Arrangement Diagram for Adjustment Parts ······ 326

There is the sheet for locating parts of the color reproduction standard frame and VC-129 board at the back of this manual.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Getting Started

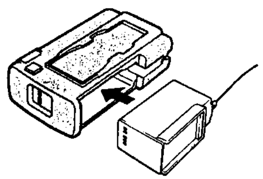
Charging and Installing the NP-500 Battery Pack

Before using your camcorder, you first need to charge and insert the supplied NP-500 battery pack. The supplied battery pack has been slightly charged when you purchase the camcorder.
You can charge the battery pack by using the supplied AC-V500 AC power adaptor with or without the supplied HSA-V500 Handycam Station. You can choose from three methods to charge the battery:

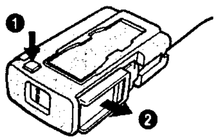
- Charge it by directly attaching it to the AC power adaptor (p.5). – To quickly charge
- Charge it by inserting it into the camcorder (p.8). – To use anytime you need
- Charge the two battery packs consecutively (p.9).

Note on the Handycam Station
You can connect your camcorder and TV or VTR more easily by using the supplied HSA-V500 Handycam Station (p.19). You can use the Handycam Station attached the AC power adaptor **[a]**.
You can also use the AC power adaptor separately. When you remove the AC power adaptor, press ADAPTOR RELEASE and pull out the AC power adaptor **[b]**. This is convenient for taking the AC power adaptor on a trip.

[a]



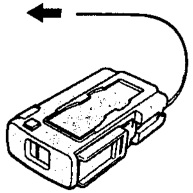
[b]



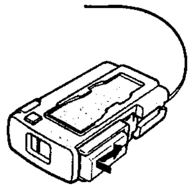
Charging with the AC Power Adaptor

You can charge the battery pack quickly. (1) Connect the AC power adaptor to a wall outlet. (2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack along the guides. The orange CHARGE lamps flash or light and charging begins. When charging is completed, the three CHARGE lamps light. (They go out after about 1 hour.) Detach the battery pack and insert it into your camcorder (p.7). You can also use the battery pack before it is completely charged. Three CHARGE lamps show the battery life. For charging time and battery life, refer to the table on the next page.

1



2



You can also charge the battery pack by using the AC power adaptor without the Handycam Station.

Charging and Installing the NP-500 Battery Pack

Charging time and battery life

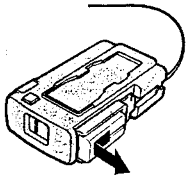
Status of CHARGE lamps	Charging time*	Battery life**
▭ F ▭ ✳ E	Start	
▭ F ▭ ■ E	30 minutes	30 minutes
▭ F ■ ■ E	50 minutes	40 minutes
■ F ■ ■ E	1 hour 30 minutes	50 minutes

* Approximate charging time to charge an empty battery pack using the AC-V500 (Lower temperatures require a longer charging time.)
** Approximate continuous recording time indoors

When the three CHARGE lamps flash simultaneously
A problem may have occurred. For details, refer to the instruction manual of the AC power adaptor.

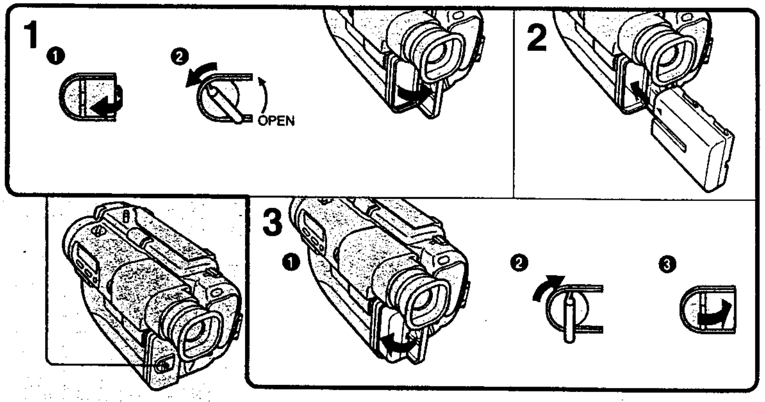
Detaching the Battery Pack

Slide the battery pack in the direction of the arrow.



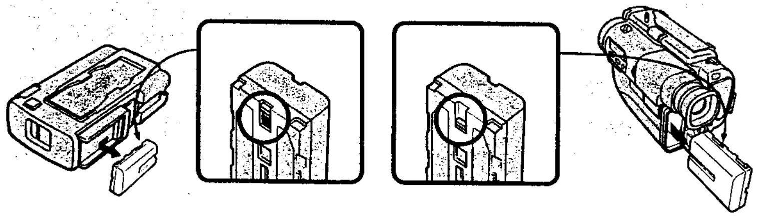
Inserting the Battery Pack into the Camcorder

(1) Turn the knob on the lid of the battery compartment. Open the lid. (2) Insert the battery pack. (3) Close the lid firmly by turning the knob.



The switch on the battery pack

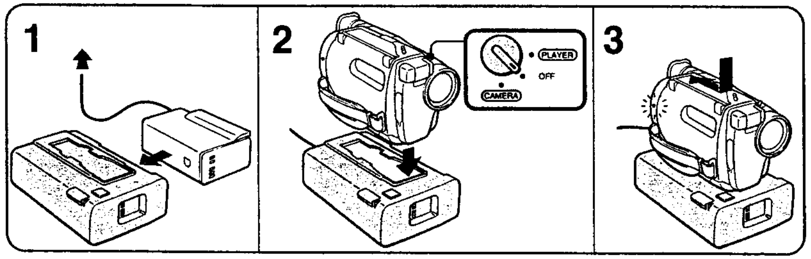
This switch is provided to help you remember the charging status of the battery. Set the switch to the "green mark" position after charging. (When detached from the AC power adaptor, the switch exposes the green mark. When detached from your camcorder, no mark is indicated.)



Charging and Installing the NP-500 Battery Pack

Charging in the Camcorder

When the camcorder is on the handycam station, the battey pack in the camcorder will be charged. It takes a longer time, but the camcorder will be able to use any time you need.
Make sure that the battery pack is inserted into your camcorder (p.7).
(1) Connect the AC power adaptor to a wall outlet. (2) Set the POWER switch to OFF. (3) Fit the camcorder to the Handycam Station.
The charge lamp on the camcorder lights and charging begins.
When charging is completed, the charge lamp on the camcorder goes out. For charging time and battery life, refer to the table below.
While charging, the camcorder may heat up. This is not cause for concern.



You can also charge by connecting the camcorder and the AC power adaptor using the supplied connecting cord (p.24).

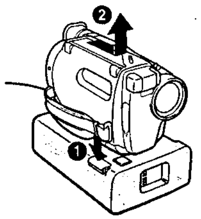
Charging time and battery life

Charging time*	Battery life**
5 hours 30 minutes	50 minutes

* Approximate charging time to charge an empty battery pack using the AC-V500 (Lower temperatures require a longer charging time.)
** Approximate continuous recording time indoors

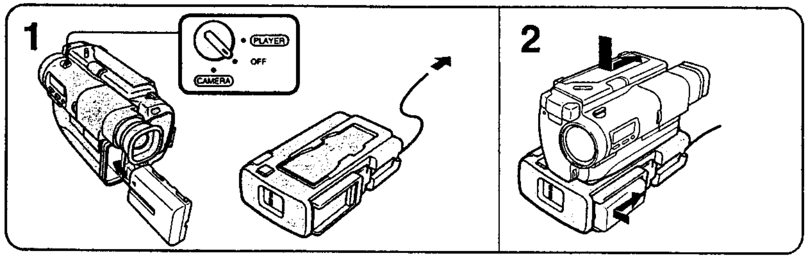
Removing the Camcorder

Press HANDYCAM RELEASE. The camcorder will unlock. Slide and lift up the camcorder.



Charging Two Battery Packs Consecutively

(1) Insert one battery pack into the camcorder (p.7). Set the POWER switch to OFF. Connect the AC power adaptor to a wall outlet. (2) Fit the camcorder to the Handycam Station. Attach another battery pack to the AC power adaptor (p.5).
The battery pack attached the AC power adaptor is charged first. Then the battery pack inside the camcorder is charged. When charging is completed, the charge lamp on the camcorder goes out following the three CHARGE lamps on the AC power adaptor went out. For charging time and battery life, refer to the table below.



You can also charge by connecting the camcorder to the AC power adaptor using the supplied connecting cord (p.24).

Charging time and battery life

Charging time*	Battery life**
8 hours	50 minutes each

* Approximate charging time to charge an empty battery pack using the AC-V500 (Lower temperatures require a longer charging time.)
** Approximate continuous recording time indoors

Tips for Using the NP-500 Battery Pack

Note on Charging

Recharge the battery pack whenever you like.
You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. So recharge the battery pack before use.

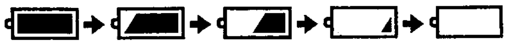
Preparing the Battery Pack

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.
"Battery life" is measured by continuous camcorder recording time, at a room temperature using a fully-charged battery. The battery is also expended when:
- You insert or eject a tape.
- The camcorder is set to Standby mode.
- You set the POWER switch to PLAYER.

Battery life is shortened in a cold environment.
Battery efficiency is decreased and the battery wears out more quickly in cold weather, below 50°F (10°C).

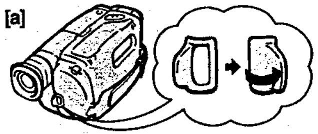
Battery Remaining Indicator

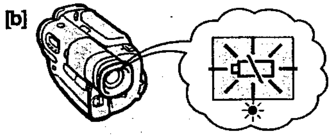
You can check the remaining battery capacity by looking at the ▬ indicator in the viewfinder. The decreasing black bar indicates decreasing battery power.



To save battery power close the STANDBY cover when not recording.
A smooth recording can be made even if recording is stopped and started again. [a]

When to Replace the Battery Pack
You can check the remaining battery capacity by looking at the battery remaining indicator in the viewfinder. When the ▭ indicator and the battery lamp in the viewfinder change from slow to rapid flashing, replace the battery pack. Set the POWER switch to OFF, and replace the battery pack. Leave the tape in the camcorder in order to obtain a smooth transition when you begin recording again. [b]

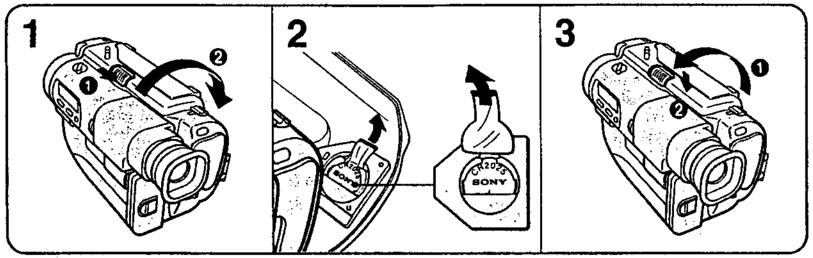




Setting the Date and Time

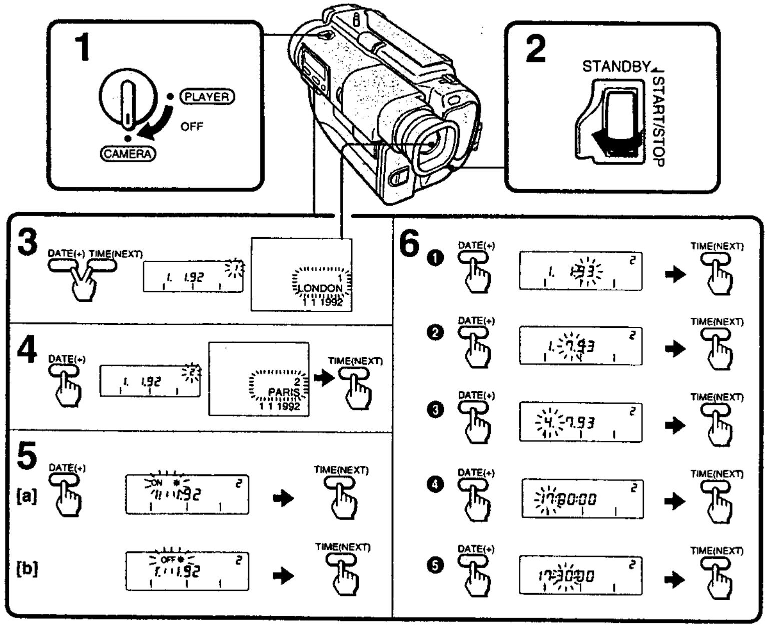
Installing the Lithium Battery

To activate the clock and the world clock, you must first install a lithium battery. (1) Slide the cover lock and open the cassette compartment cover. (2) Pull out the film in the battery compartment. (3) Close the cover and press the top the cover to lock it.



Setting the Date and Time

Before setting the clock, make sure a power source and lithium battery are installed. (1) Set the POWER switch to CAMERA. (2) Open the STANDBY cover. (3) Press DATE (+) and TIME (NEXT) simultaneously until the area name and number flash in the viewfinder. (4) Press DATE (+) to set your home area. (5) Set the Time: **[a]** For summer time, press DATE (+) then press TIME (NEXT), **[b]** For standard time, press TIME (NEXT). (6) Adjust the flashing digits for the year, month, day and hour by pressing DATE (+) and TIME (NEXT). To set the year to 1992, there is no need to press DATE (+) in 6-①. Note that when you keep DATE (+) pressed, the digits advance faster.



Time Zones and Area Numbers and Names

Countries	Area name	Area number
The United Kingdom and Portugal (GMT)	LONDON	1
Other European countries (CET)	PARIS	2
Finland, Greece, etc.	CAIRO	3

To Correct the Date and Time Setting

Repeat steps 3 to 6.

To Check the Preset Date and Time

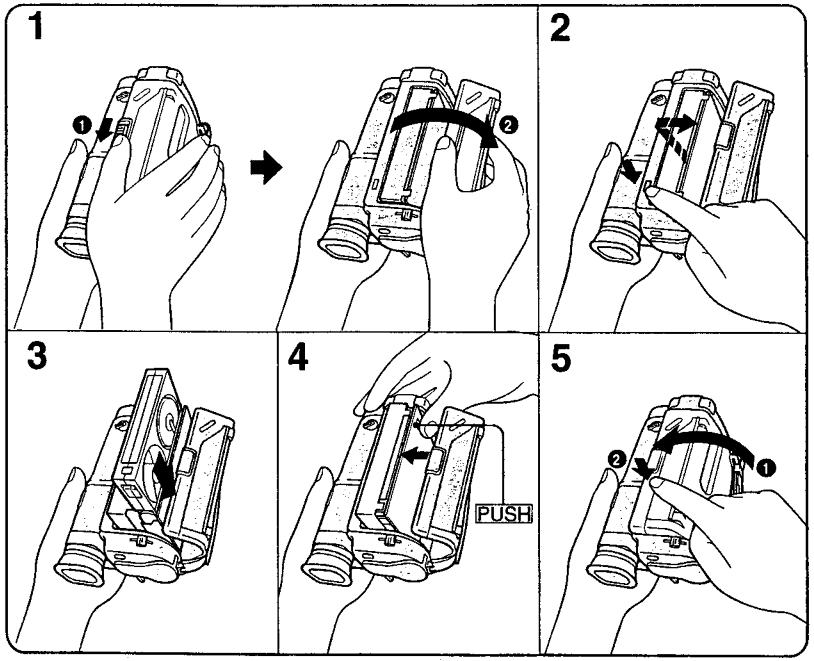
Press DATE (+) to display the date indicator in the viewfinder and the display window. Press TIME (NEXT) to display the time indicator. When you press the same button again, the indicator goes out.

To Reset to Standard Time

Change the SUMMER TIME mode setting in the menu system (p.30).

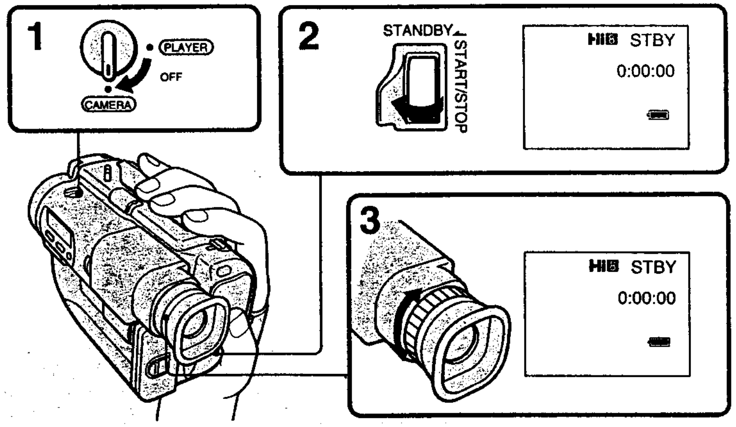
Inserting a Cassette

Make sure that a power source is installed. (1) Slide the cover lock and open the cassette compartment cover. (2) Press EJECT. The cassette compartment automatically lifts up and opens. (3) Insert a cassette (not supplied) with the window facing out. (4) Press the PUSH mark on the cassette compartment to close it. (5) Close the cover and press the top of the cover to lock it.
To eject the cassette, press EJECT.



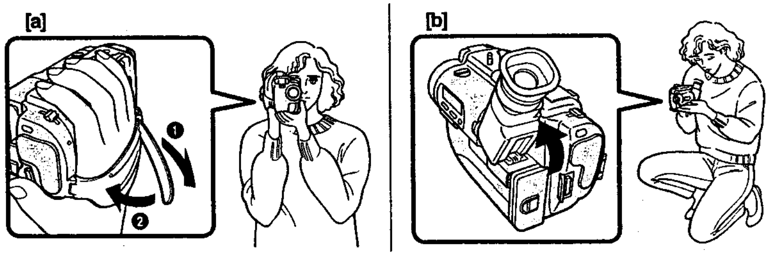
Adjusting the Viewfinder Lens

Before you use the camcorder for the first time or after someone else has used it, focus the viewfinder lens. Make sure that the power source is connected to the camcorder.
(1) Set the POWER switch to CAMERA. (2) Open the STANDBY cover. (3) Turn the viewfinder lens adjustment ring so that the "STBY" indicator in the viewfinder comes into sharp focus.



Hints for Better Shooting

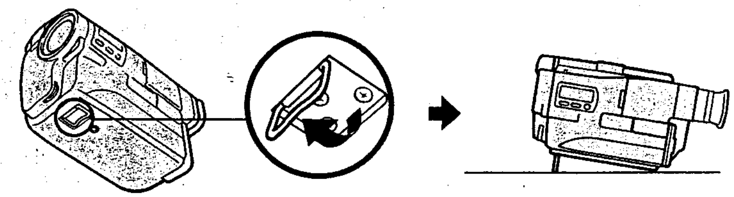
For hand-held shots, you'll get better results holding the camcorder according to the following suggestions:



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. **[a]**
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting recording angle. Turn the viewfinder up for recording from a low position. **[b]**

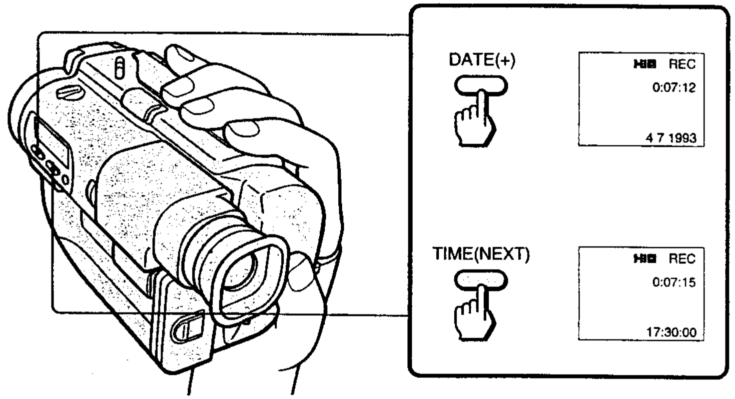
Place the camcorder on a flat surface or use a tripod
Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder (p.43). Make sure the tripod screw is shorter than 6.5mm (9/32 in).

Use the instant stand
Lift up the stand at the bottom of the camcorder. Do not attach a shoulder strap to the stand.



Recording the Date or Time

In CAMERA mode, press DATE (+) or TIME (NEXT). You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.

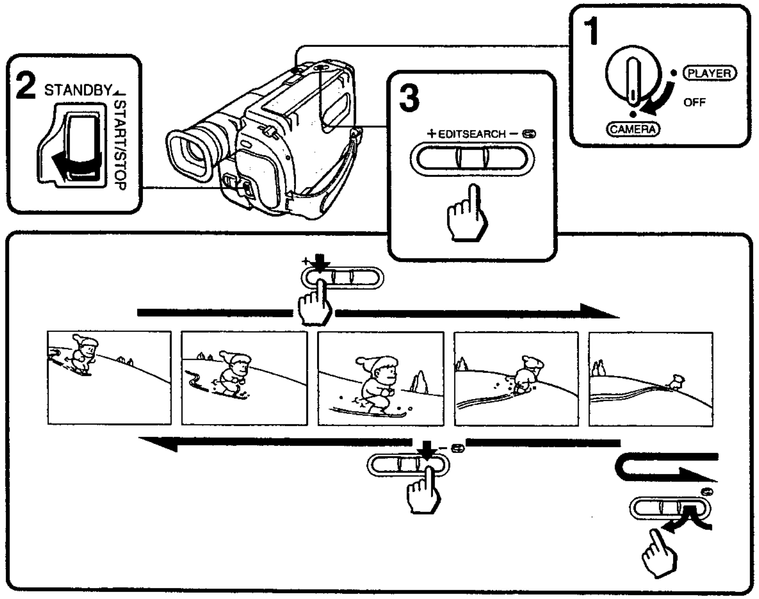


To Stop Recording with the Date or Time

Press DATE (+) or TIME (NEXT) again. Recording continues.

Checking the Recorded Picture in the Viewfinder

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder. (1) Set the POWER switch to CAMERA. (2) Open the STANDBY cover. (3) Press EDITSEARCH. Press the – (⊜) side momentarily, the last few seconds of the recorded portion plays back **(Rec Review)**.
Keep pressing EDITSEARCH to play back the last recorded portion **(Edit Search)**.
+ side: to view the forward playback picture
– side: to view the reverse playback picture



Monitoring the Sound While Viewing the Playback Picture in the Viewfinder

Connect headphones (not supplied) to the PHONES jack. Play back the tape in PLAYER mode (p.22).

To Stop Playback

Release EDITSEARCH.

To Begin Re-recording

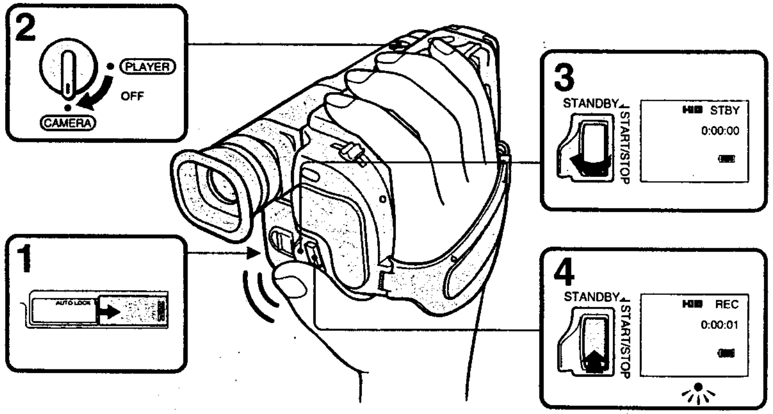
Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the tape, the transition between the last scene you recorded and the next scene you record will be smooth.

Basic Operation

Camera Recording

Make sure that a power source is installed and a cassette is inserted. Before you record one-time events, you may want to make a trial recording to make sure that you are using the camcorder correctly. (1) Close the AUTO LOCK cover for automatic adjustment (p.25). (2) Set the POWER switch to CAMERA. (3) Open the STANDBY cover. (4) Press START/STOP. The camcorder starts recording and the "REC" indicator will appear in the viewfinder.

You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE in the menu system (p.30) according to the length of your planned recording before you start recording.



To Stop Recording Momentarily

Press START/STOP again. The "STBY" indicator appears in the viewfinder (**Standby mode**).

To Finish Recording

Close the STANDBY cover and set the POWER switch to OFF.
Then, eject the tape (p.12).

Note on Standby mode

If you leave the camcorder for 5 minutes or more with a cassette inserted in Standby mode, the camcorder goes off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, close the STANDBY cover once and open it again. To start recording, press START/STOP.

Note on recording

When you record from the beginning of the tape, run the tape for about 15 seconds before actual recording. This prevents the camcorder from missing any start-up scenes when you play back the tape.

Note on the tape counter

The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press RESET located below the display window.

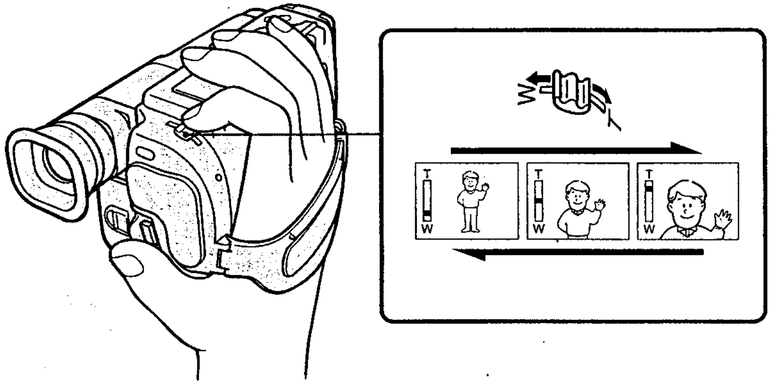
Recording mode

This camcorder records in the SP mode (approximately 20.051 mm/second) and in the LP mode (approximately 10.058 mm/second) and can play back in the SP mode and LP mode. The quality of the playback picture in the LP mode, however, will not as good as that in the SP mode.

Camera Recording

Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene. You can also use the zoom to focus manually or to decide on a shooting angle before you start recording. For more professional-looking recordings, use the zoom sparingly.
T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)



Zooming Speed

Slide the power zoom lever firmly for a high-speed zoom. Slide it softly for a relatively slow zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, slide the W side of the power zoom lever until the focus is sharp.
You can shoot a subject that is at least 90 cm (about 3 feet) away from the lens surface in the telephoto position, or 1cm (about 1/2 inches) in the wide-angle position.

Manual focusing in macro

You can also shoot with manual focus while doing close-ups (p.26).

Connections for Playback

You can use this camcorder as a VTR by connecting it to your TV for playback. There are three ways to connect your camcorder.

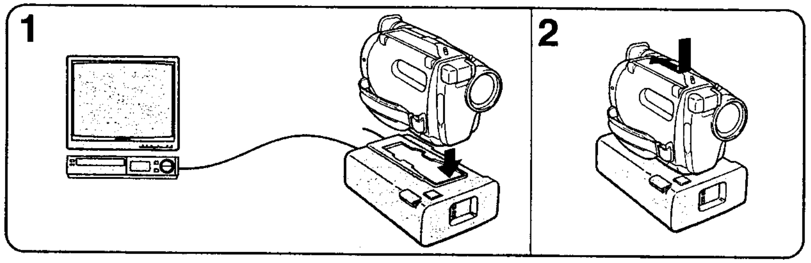
- Connecting to a TV or VTR using the Handycam Station (p.19)
- Connecting to a TV with Video/Audio input jacks or a VTR (p.20)
- Connecting to a TV without Video/Audio input jacks (p.21)

Connecting to a TV or VTR Using the Handycam Station

After you've connected the supplied HSA-500 Handycam Station, you can view the playback picture on a TV easily.

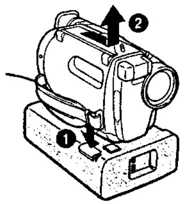
To Fit the Camcorder to the Handycam Station

For details of the connection, see the instruction manual for the Handycam Station. (1) Place the camcorder into the Handycam Station. (2) Slide the camcorder along the guides to fit it in.



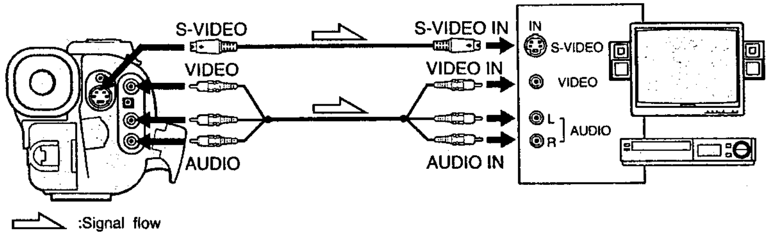
To Remove the Camcorder

Press HANDYCAM RELEASE on the Handycam Station. Slide and lift up the camcorder.



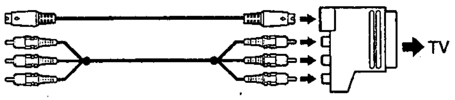
Connecting to a TV with Video/Audio Input Jacks or a VTR

Connect the camcorder to your TV by using the supplied connecting cable. Set the TV/VTR selector to VTR on the TV. When Connecting the camcorder to VTR, set the input selector on the the VTR to LINE.



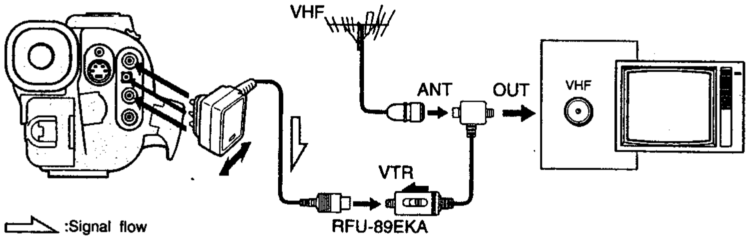
If your TV or VTR is a monaural type, connect only the white plug for audio on both the camcorder and the TV or the VTR. With this connection, the sound is in monaural.
If you are going to connect the camcorder using the S video cable, you do not need to connect the yellow (video) plug of the A/V connecting cable.

If your TV has a 21-pin connector (EUROCONNECTOR)
Use the supplied 21-pin adaptor.



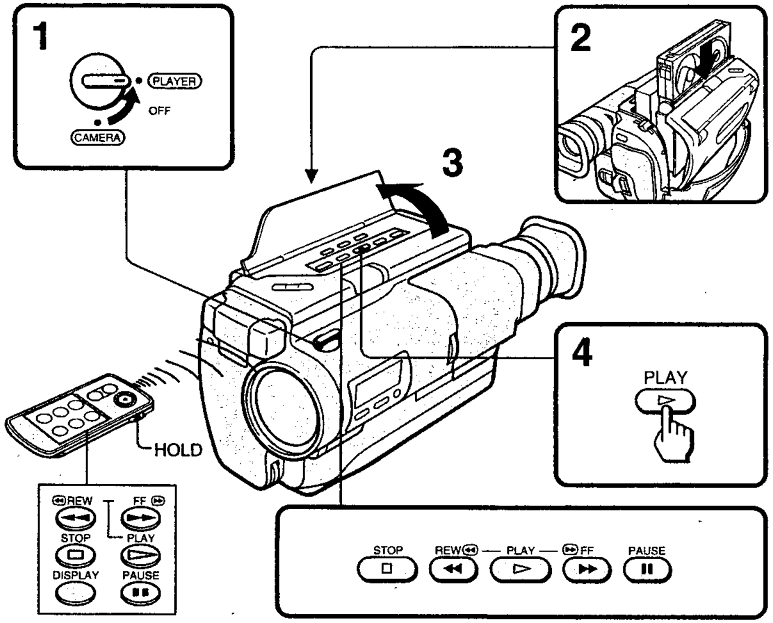
Connecting to a TV without Video/Audio Input Jacks

Connect the camcorder to the TV using an appropriate RFU adaptor such as the RFU-89EKA (not supplied). For details on connection, refer to the instruction manual of the RFU adaptor.
The following illustrates the connection of the RFU-89EKA as an example.


VHF
ANT
OUT
VHF
VTR
RFU-89EKA
:Signal flow

Playing Back a Tape

You can monitor the playback picture in the viewfinder. You can also monitor on the TV screen, after connecting the camcorder to the TV/VTR (p.19). You can control playback using the supplied Remote Commander (p.45). Before using the Commander, slide the HOLD switch in the direction opposite to the arrow. (1) Set the POWER switch to PLAYER. (2) Insert the recorded tape with the window facing out. (3) Open the lid of the control panel. (4) Press ▷. Playback starts.


1
PLAYER
OFF
CAMERA
2
3
4
PLAY
HOLD
REW
FF
STOP
PLAY
DISPLAY
PAUSE
STOP
REW
PLAY
FF
PAUSE

To stop playback, press □.
To rewind the tape, press ◀◀.
To advance the tape rapidly, press ▶▶.

Various Playback Modes

To view a still picture (playback pause)
Press ▮▮ during playback. To resume playback, press ▮▮ or ▷.

To locate a scene (picture search)
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture during fastforward or rewind (skip scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture in a sequence of stop-motion images
Press EDITSEARCH in playback pause mode. If you keep pressing EDITSEARCH, you can view the picture playback in the forward (+) or reverse (–) direction.

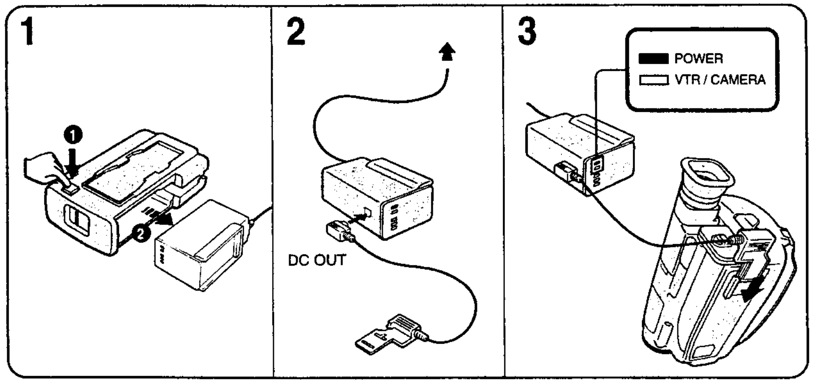
Notes on playback
- Streaks appear and the sound is muted in the various playback modes.
- When still picture mode lasts for 5 minutes or more, the camcorder automatically enters stop mode.

To select the monitor sound
Change the "Hi-Fi SOUND" mode setting in the menu system (p.30).

To display the viewfinder screen indicators on the TV
Press DISPLAY on the Remote Commander.
To erase the indicators, press DISPLAY again.

Using House Current

You can use alternative power sources: house current and the NP-500 battery pack. This section describes using house current. Use the supplied AC-V500 AC power adaptor. (1) Remove the AC power adaptor from the Handycam Station. Press ADAPTOR RELEASE and pull out the AC power adaptor. (2) Connect the power cord to a wall outlet, and connect the supplied connecting cord to the DC OUT jack on the AC power adaptor. (3) Insert the connecting plate into the guides at the bottom of the camcorder. The orange VTR/ CAMERA lamp lights while the camcorder is operating.



Note on the instant stand
Do not use the instant stand (p.14) when you connect the connecting cord to the camcorder. The connecting plate will be stressed that may cause a malfunction, and the camcorder will be unstable.

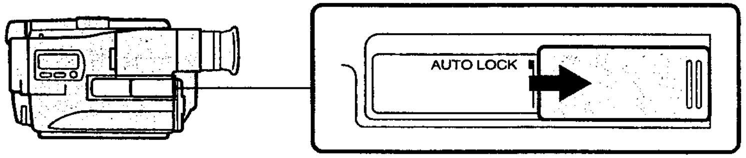
Caution
To prevent accident from a short circuit, do not come into contact with the terminals inside the shutter at the bottom of the camcorder.

Selecting Automatic or Manual Adjustment Modes

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for creative recording.

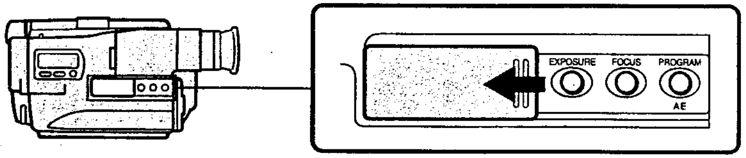
Automatic Adjustment Mode

Close the AUTO LOCK cover. In AUTO LOCK mode, the camcorder adjusts the focus and exposure automatically. It also sets the shutter speed to 1/50.



Manual Adjustment Mode

Open the AUTO LOCK cover. In manual mode, you can adjust the focus and the exposure manually, and select from three PROGRAM AE modes to fit the shooting situation.
Even if in manual mode, the settings you didn't adjust manualy remain the same as when in automatic adjustment mode.



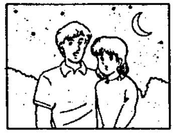
About the previous settings
Manual settings are saved in the following case:
- When you resume automatic mode after you make manual adjustments and then select manual mode again.
- When you set the POWER switch to OFF

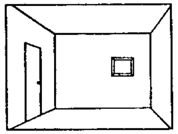
However, manual settings are cancelled if more than 5 minutes pass after you have detached the battery.

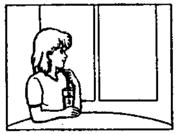
Focusing Manually

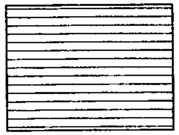
When to Use Manual Focus

Use manual focus under the following conditions:


[a]


[b]


[c]


[d]

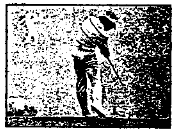
- Insufficient light **[a]**
- Subjects with little contrast – walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting light
- Shooting a stationary subject when using a tripod

Using the PROGRAM AE Function

You can select from three PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can get a Portrait effect (the subject is in focus and the background is out of focus) or capture high-speed action with Sports mode or High-Speed Shutter mode.

Selecting the Best Mode

Select the best mode by using the following examples.



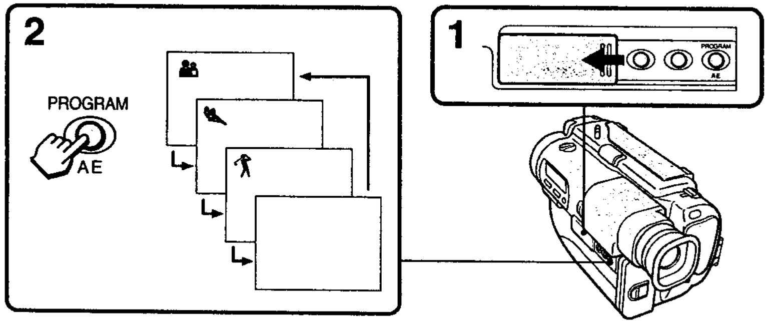
Portrait mode
- A still subject such as a person or flower
- Subject behind an obstacle such as a net
- Zooming in on a subject in telephoto

Sports mode
- Outdoor sports scenes such as football, tennis, golf or skiing
- A landscape in a moving car

High-speed shutter mode
- A golf swing or a tennis match in fine weather with the ball captured clearly
- Playing back certain scenes with high-speed movements in clear, sharp picture

Using the PROGRAM AE Function

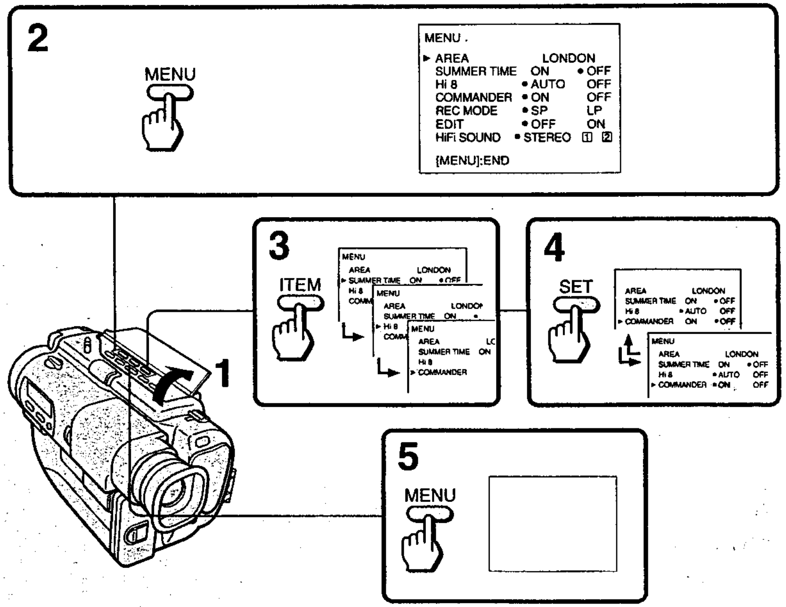
(1) Open the AUTO LOCK cover. (2) Press PROGRAM AE repeatedly so that the desired mode indicator appears inside the viewfinder.



Note on shutter speed
The shutter speed in each PROGRAM AE mode is as follows:
Portrait mode – between 1/50 to 1/2000
Sports mode – between 1/50 to 1/500
High-speed shutter mode – 1/4000

Changing the Mode Settings

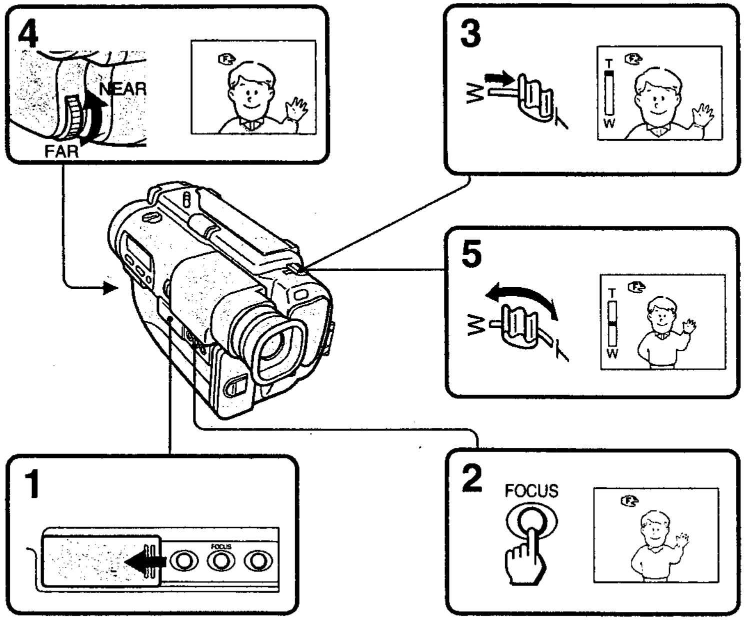
You can change the mode settings in the menu system to further enjoy the features and functions.
(1) Open the lid of the control panel. (2) Press MENU to display the menu in the viewfinder. (3) Press ITEM to move the cursor ▶ and select the desired item. (4) Press SET to move the cursor ● and set the desired mode. If you want to change the other modes, repeat steps 3 and 4. (5) Press MENU to erase the menu display.



```
MENU .
► AREA            LONDON
  SUMMER TIME  ON     ● OFF
  Hi 8         ● AUTO   OFF
  COMMANDER    ● ON     OFF
  REC MODE     ● SP     LP
  EDIT         ● OFF    ON
  HiFi SOUND   ● STEREO ① ②
  [MENU]:END
```

Focusing Manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length. (1) Open the AUTO LOCK cover. (2) Press FOCUS. The Ⓕ indicator appears in the viewfinder. (3) Keep the power zoom lever to the T side until the zooming stops. (4) Turn the focus dial to adjust the focus. (5) Set the desired shot length.



To Reactivate Auto Focusing

Press FOCUS again, or close the AUTO LOCK cover. The Ⓕ indicator in the viewfinder disappears.

Shooting in relatively dark places
Shoot at wide angles after focusing in telephoto.

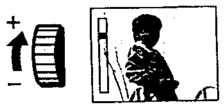
Note on the focus dial
The focus dial does not have a stop position.

Adjusting the Exposure

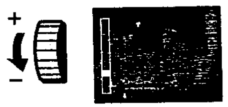
When to Adjust the Exposure

Adjust the exposure manually under the following cases.

[a]



[b]

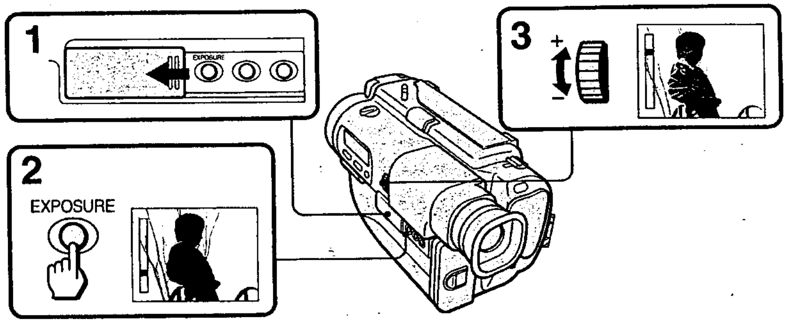


[a] Turn the Exposure dial to + when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the Exposure dial to – when:
- Bright subject and dark background
- To record the darkness faithfully

Adjusting the Exposure

(1) Open the AUTO LOCK cover. (2) Press EXPOSURE. The exposure indicator appears in the viewfinder and the exposure is locked at the actual brightness. (3) Turn the EXPOSURE dial to adjust exposure. The exposure is locked at the adjusted brightness.



To Return to Automatic Exposure Mode

Press EXPOSURE again, or close the AUTO LOCK cover.

Shoot with the sun behind you
When the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shoot in the dark
We recommend you to use the video light (not supplied). To get the best colour, you must maintain a sufficient light level.

Selecting the Mode Setting of Each Item

AREA
You cannot select this item before setting the date and time (p.10).

- Select the area name of the time zone where you will use the camcorder when you use the world clock (p.32).

SUMMER TIME <ON/OFF>
You cannot select this item before setting the date and time (p.10).

- Select ON to set the clock to summer time.
- Select OFF to set to standard time.

Hi8 <AUTO/OFF>

- Select AUTO to have the camcorder automatically set the recording mode (Hi8 or standard 8 mm) depending upon cassette type being used.
- Select OFF to record a Hi8 tape in standard 8 mm format. See page 35 for details about cassette types.

COMMANDER <ON/OFF>

- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander for the camcorder.

REC MODE <SP/LP>

- Select SP to record a tape in the SP (stadard play) mode.
- Select LP to record in the LP (long play) mode.

EDIT <ON/OFF>
In CAMERA mode, this option is not displayed.

- Select ON to minimize the picture and sound deteriorations when editing.
- Select OFF otherwise.

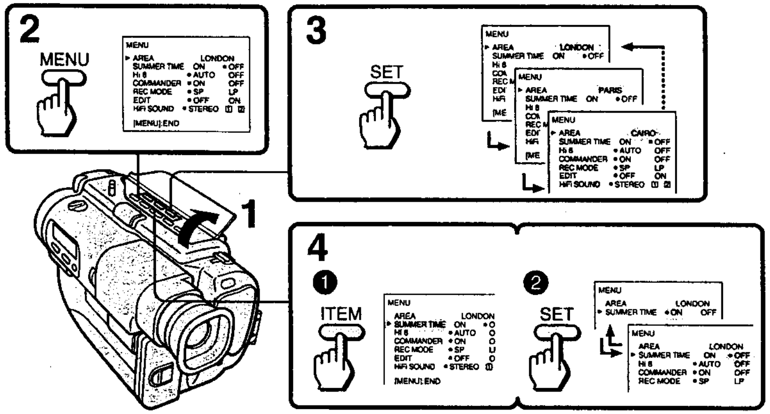
HIFI SOUND <STEREO / [1] / [2] >
In CAMERA mode, this option is not displayed.

- Normally select STEREO.
- Select [1] or [2] to play back a dual soundtrack tape.

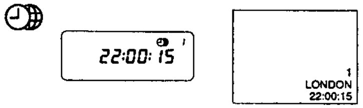
Changing the Mode Settings

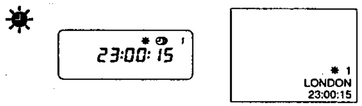
Using the World Clock

Before using the world clock, you need to set the date and time in your home area (p.10). Reset the clock according to the local time zone by setting AREA and SUMMER TIME modes in the menu system. First find the area name in the "Time zone chart" on page 33. (1) Open the lid to the control panel. (2) Press MENU to display the menu. (3) Press SET to select the area name where you will use the camcorder. (4) Press ITEM to select SUMMER TIME item. Press SET to select ON: for summer time or OFF: for standard time.


2
MENU
MENU
▸ AREA LONDON
SUMMER TIME ON •OFF
Hi 8 •AUTO OFF
COMMANDER •ON OFF
REC MODE •SP LP
EDIT •OFF ON
HiFi SOUND •STEREO [1] [2]
[MENU]:END
3
SET
▸ AREA LONDON
▸ AREA PARIS
▸ AREA CAIRO
1
4
❶
ITEM
❷
SET
▸ SUMMER TIME •ON OFF
▸ SUMMER TIME ON •OFF

The 🌐 indicator appears in the display window and the area name appears in the viewfinder when using the world clock. The ☀ indicator appears in the display window and the viewfinder when setting to summer time.


22:00:15
1
LONDON
22:00:15


23:00:15
1
LONDON
23:00:15

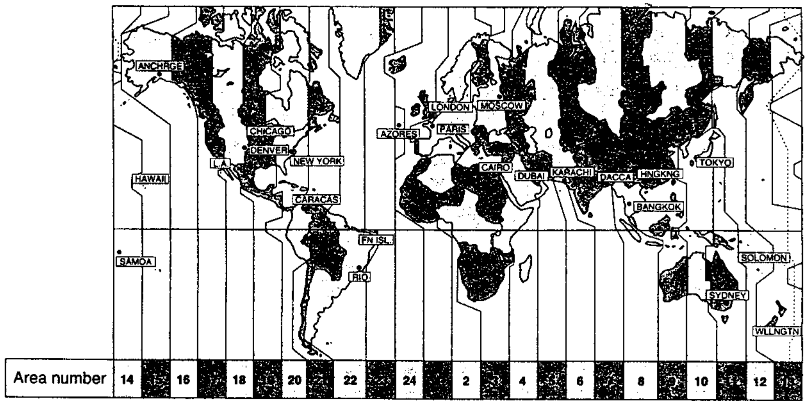
To Check the Date

Press DATE (+). To turn off the date indicator, press DATE (+) again.

To Reset to Your Home Area Time

Reset the AREA mode in the menu system to your home area name.

Time Zone Chart



Area number	Area name	Nations or area*
1	LONDON	England, GMT (Greenwich Mean Time), Portugal
2	PARIS	Austria, France, Germany, Italy, Netherlands, Spain, Sweden, Swizerland
3	CAIRO	Egypte, Greece, Israel, Turkey
4	MOSCOW	Iraq, Kenya, Saudi Arabia, former U.S.S.R. (west)
5	DUBAI	United Arab Emirates
6	KARACHI	Moidives, Pakistan
7	DACCA	Bangladesh, India, Myanmar
8	BANGKOK	Cambodia, Indonesie (Jakarta), Thailande, Vietnam
9	HNGKNG	Australia (west), Chine, Hong Kong, Indonesia (Bali, Borneo), Malaysia, Philippines, Singapore, Taiwan
10	TOKYO	Japan, Korea
11	SYDNEY	Australia (east), Guam, Saipan
12	SOLOMON	New Caledonia
13	WLLNGTN	Fiji, New Zealand
14	SAMOA	Western Samoa
15	HAWAII	Hawaii I., Tahiti, HST (Hawaii Standard Time)
16	ANCHRGE	U.S.A. (Alaska), AST (Alaska Standard Time)
17	L.A.	U.S.A. (Los Angeles, San Francisco), PST (Pacific Standard Time)
18	DENVER	U.S.A. (Denver), MST (Mountain Standard Time)
19	CHICAGO	Mexico, U.S.A. (Chicago), CST (Central Standard Time)
20	NEWYORK	Canada (Montreal), Jamaica, Peru, U.S.A. (New York, Washington D.C.), EST (East Standard Time)
21	CARACAS	Chili, Venezuela
22	RIO	Argentina, Brazil
23	FN ISL.	Fernando de Noronha
24	AZORES	Azores Islands

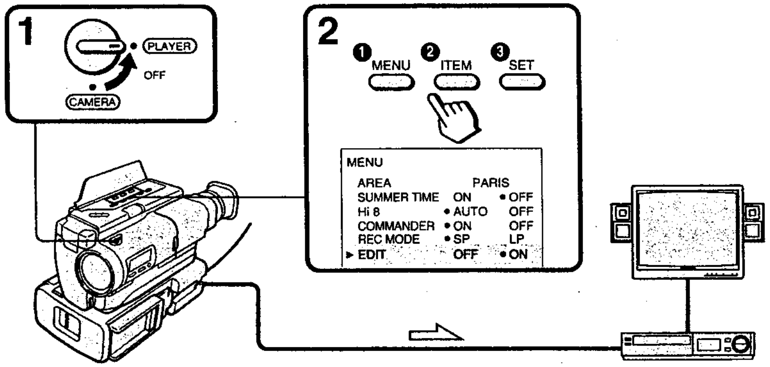
* These are common names. They may be different from formal country names.

Editing onto Another Tape

You can create your own video programme by editing with any other 8 8 mm, Hi8 Hi8, β Betamax, VHS VHS, S-VHS S-VHS, VHS-C VHSC, or S-VHS-C S-VHSC VTR that has video/audio inputs.

Before Editing

After fitting the camcorder to the Handycam Station that is connected to your VTR, (1) Set the POWER switch to PLAYER, (2) Set EDIT mode to On in the menu system (p.30).



MENU
AREA PARIS
SUMMER TIME ON ● OFF
Hi 8 ● AUTO OFF
COMMANDER ● ON OFF
REC MODE ● SP LP
▸ EDIT OFF ● ON

⇨ :Signal flow

Starting Editing

(1) Insert a blank tape (or a tape you want to record over) into the recording VTR. Then insert your recorded tape into the camcorder. (2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing. Then set the camcorder to playback pause mode. (3) Set the recording VTR to recording pause mode. (4) Press ❚❚ on the camcorder and VTR simultaneously to start editing.

To Edit More Scenes

Repeat steps 2 to 4.

To Stop Editing

Press ☐ STOP on the camcorder and VTR. When you finish editing, reset EDIT mode to OFF (p.30).

Use of the EDITSEARCH button

To play back a tape in the forward or reverse direction keep pressing EDITSEARCH during playback pause. You can play back still pictures successively at specific intervals by pressing EDITSEARCH intermittently.

Note on DISPLAY function

If you have displayed the viewfinder screen indicators on the TV (DISPLAY function), erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

Usable Cassettes and Recording/Playback Modes

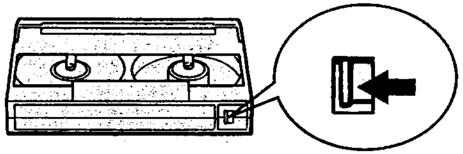
Selecting Cassette Types

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures. You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using a standard 8 mm video recorder/player, you should record the tape in the standard 8 mm system.
If you want to use a Hi8 cassette with the standard 8 mm recording system, set the Hi8 mode to OFF in the menu system befor recording (p.30).

To play back in	Record using cassette type	Set Hi8 setting to
Hi8	Hi8	AUTO
Standard 8	Hi8	OFF
	8	AUTO (or OFF)

To Prevent Accidental Erasure

Slide the tab on the cassette to expose the red mark.



If you try to record with the red mark exposed, the ▣ and ▲ indicators flash in the viewfinder, and you cannot record on the tape. To re-record on this tape, slide the tab back out to cover the red mark.

When You Play Back

The playback mode is selected automatically according to the recording system (Hi8/standard 8 mm, SP/LP mode) in which the tape was recorded.

Notes on AFM Hi-Fi stereo
When you play back the tape, the sound is in monaural if:

- You record the tape using this camcorder, then play it back on an AFM Hi-Fi monaural video recorder/player.
- You record the tape on an AFM Hi-Fi monaural video recorder, then play it back on this camcorder.

Recording mode
When you play back a tape, the SP/LP indicator in the viewfinder shows the recording mode SP/LP.

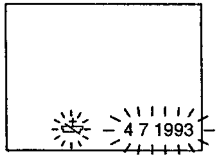
Changing the Lithium Batteries

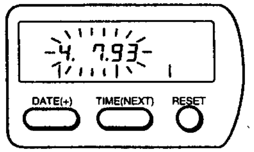
Lithium Battery Life

The lithium battery for the camcorder lasts for about 1 year under normal operation. When the battery becomes weak or dead, the date or time indicator keeps flashing in the display window and ☼ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA.

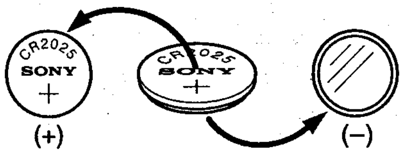
The lithium battery for the Remote Commander lasts about 6 months under normal operation. When the battery becomes weak or dead, the Commander does not work.

In either cases, **replace the battery with the Sony CR2025 lithium battery. Use of another battery may present a risk of fire or explosion.**



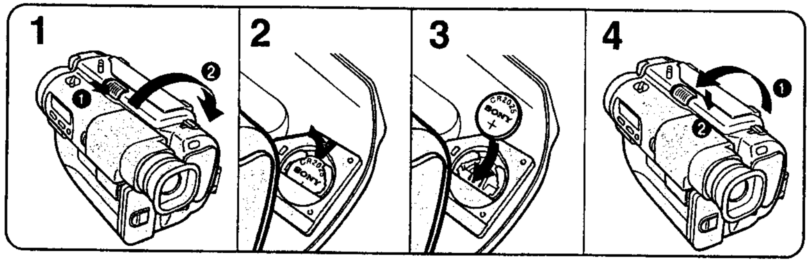


Note that the lithium battery has a positive (+) and a negative (–) terminal as illustrated. **Be sure to install the lithium battery so that terminals on the battery match the terminals on the camcorder or the Remote Commander.**



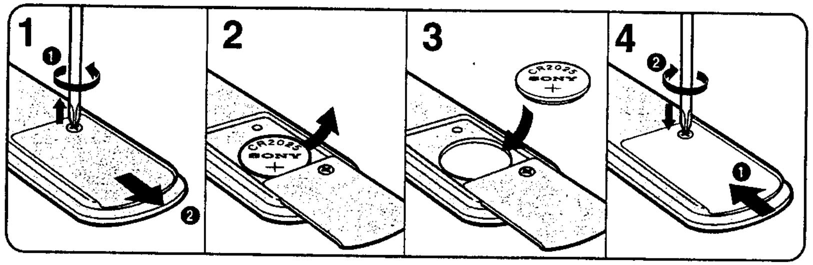
Changing the Lithium Battery in the Camcorder

While replacing the battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date and time.
(1) Unfasten the grip belt (p.14). Open the cassette compartment cover. (2) Push the battery down once and pull it out from the lithium battery holder inside the cover. (3) Install a new battery with the positive (+) terminal facing up. (4) Close the cassette compartment cover.



Changing the Lithium Battery in the Remote Commander

(1) Unfasten the screw at the back of the Commander and open the lithium battery holder. (2) Remove the lithium battery. (3) Insert a new battery with the positive (+) terminal facing up. (4) Close the holder. Fasten the screw.



Cautions
- Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.
- Do not hold the battery with the metallic tweezers, otherwise a short-circuit may occur.
- The Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

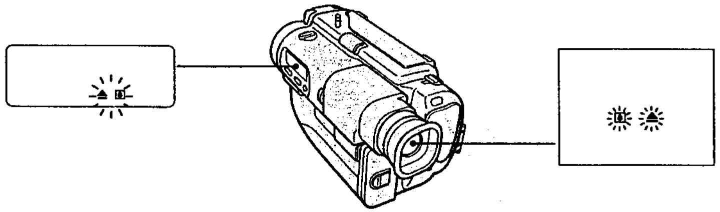
Maintenance Information and Precautions

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. If this happens, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

Inside the Camcorder

When ▣ and ▲ indicators flash in the viewfinder and the display window, moisture has condensed inside the camcorder. If this happens, none of the functions except cassette ejection will work.
Eject the tape, turn off the camcorder, and leave it with the cassette compartment open for about 1 hour.
If the ▣ indicator does not light up when you turn on the power, you can use the camcorder again.



On the Surface of the Tape

If there is moisture on the surface of the tape, when you insert tape and press a tape transport button, the ▲ indicator flashes in the viewfinder and the display window. If this happens, none of the functions except cassette ejection will work.
Eject the tape and let it sit for about 1 hour.
If the ▲ indicator does not light up when you insert the tape and press a tape transport button, you can use the camcorder again.

On the Lens

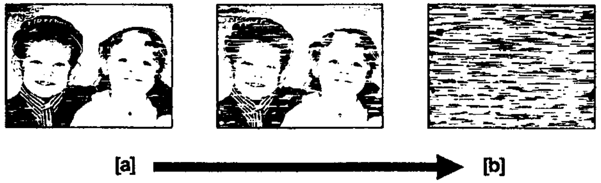
No indicator will appear, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.
1 Be sure to tightly seal the plastic bag containing the camcorder.
2 Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about one hour).

Video Head Cleaning

To ensure clear pictures, clean the video heads periodically. When playback pictures are "noisy" or hardly visible, the video heads may be contaminated.



[a] Slight contamination
[b] Critical contamination

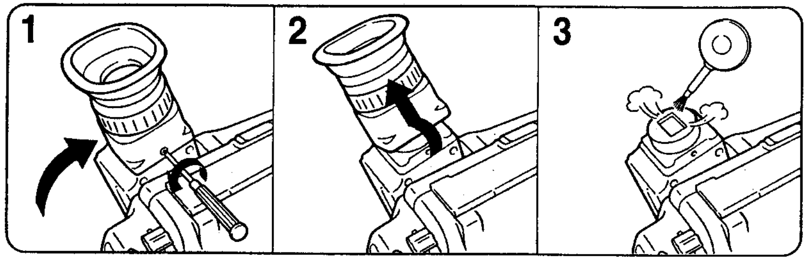
If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy", repeat the cleaning. (Do not repeat cleaning more than 5 times.)

Caution
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note
If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

Removing Dust from Inside the Viewfinder

(1) Turn the viewfinder up. Unfasten the screw at the side of the viewfinder using a precision screwdriver (not supplied). (2) Turn the viewfinder to the outside and pull it out. (3) Clean the surface of the screen with a commercially available blower.

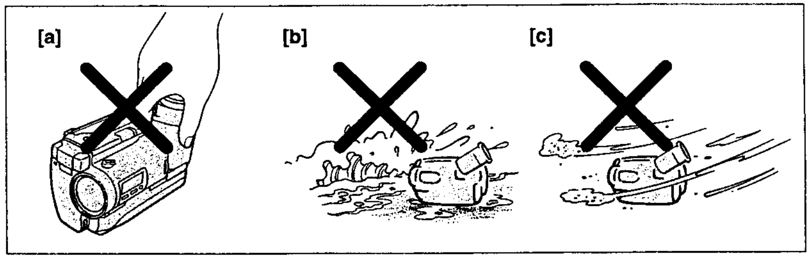


To Reattach the Viewfinder
Push in the viewfinder until it clicks and fasten the screw.

Precautions

On Operation

- Operate the camcorder using 7.2 V (battery pack), or 6.5 V (AC power adaptor).
- For DC or AC operation, use only the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Do not pick up the camcorder by the viewfinder. [a]
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction and sometimes the malfunction cannot be repaired. [b]**
- **Do not let the camcorder get wet. Keep the camcorder from rain or sea water. It may cause a malfunction and sometimes the malfunction cannot be repaired.[c]**



On Handling Tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type, thickness of tape, or if the tab is out or in.

On Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Using Your Camcorder Abroad

Each country has its own electricity and TV colour systems. Before using your camcorder abroad, check the following points:

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 100 V to 240 V AC, 50/60 Hz. If you cannot attach the power adaptor to the wall outlet, use a power cord plug adaptor (not supplied).

Difference in Colour Systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV or a SECAM system-based TV with PAL-SECAM transcoder. Check the following alphabetical list.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany (former West Germany), Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

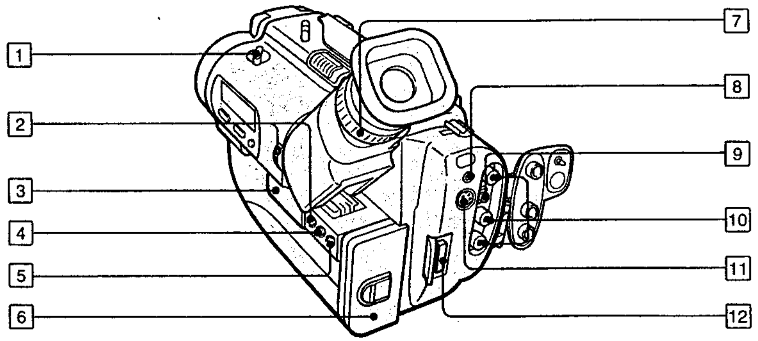
PAL M system country
Brazil

PAL N system countries
Argentina, Paraguay, Uruguay

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries
Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, etc.

Identifying the Parts



1 **POWER switch** (p.15, 22)
CAMERA: for camera recording
PLAYER: for playing back tape
OFF: power off

2 **EXPOSURE button and EXPOSURE dial** (p.28)
Press EXPOSURE to lock the exposure at the actual brightness. To adjust the exposure manually, press this button and turn the EXPOSURE dial as follows:
Upward: to get the exposure brighter
Downward: to get the exposure darker

3 **AUTO LOCK cover** (p.15, 25)
When you close it (set to AUTO LOCK), the camcorder adjusts the focus and exposure automatically and sets the shutter speed at 1/50 seconds.
When you open it, you can adjust the focus and exposure manually. You can also use the PROGRAM AE function.

4 **FOCUS button** (p.27)
Press it to set the camcorder in manual focus mode.

5 **PROGRAM AE button** (p.29)
Press to select from three PROGRAM AE modes (Portrait / Sports / High-Speed Shutter mode) to fit the shooting situation.

6 **Battery compartment** (p.7)
Insert the supplied Battery Pack NP-500 here.

7 **Viewfinder lens adjustment ring** (p.13)
To focus the viewfinder lens, turn this ring until the indicator in the viewfinder comes into sharp focus.

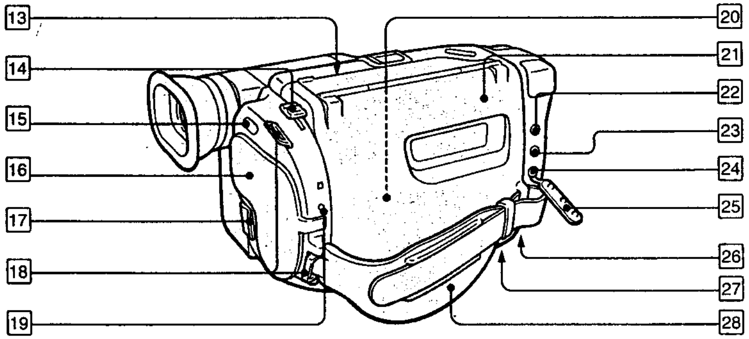
8 **REMOTE (LANC) control jack**
Connect the LANC connecting cable to a wired remote control unit such as a editing controller. In this case, set the REMOTE COMMANDER mode to OFF in the menu system (p.30).
stands for Local Application Control Bus System. The control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

9 **RFU DC OUT (RFU adaptor DC output) jack** (p.21)
To view the recorded picture on the TV that has only an aerial input, connect the RFU adaptor (not supplied) here.

10 **VIDEO/AUDIO jacks** (p.20)
These jacks work as output jack.
To view the recorded picture on the TV or to rerecord onto another tape, connect these jacks and the VIDEO/AUDIO input jacks on the TV or VTR using the A/V connecting cable (supplied).

11 **S VIDEO jack (4-pin mini-DIN connector)** (p.20)
You can get a clearer picture if your TV or VTR has an S video jack. Connect to these jacks using the S video connecting cable (supplied).
This jack works as output jack.
To view the recorded picture on the TV or to rerecord onto another tape, connect this jack and the S video input jack on the TV or VTR.

12 **START/STOP button** (p.15)
To start recording, press it after setting the POWER switch to CAMERA and opening the STANDBY cover.
To stop recording momentarily, press it again.



13 **EJECT button (below the cover)** (p.12)
Press it to insert a cassette into the cassette compartment or to eject the cassette.

14 **POWER ZOOM lever** (p.16)
Slide to change the size of the subject in the scene.
T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)

15 **Rear remote sensor** (p.45)
Aim the Remote Commander here for remote control.

16 **Jack cover**

17 **STANDBY cover** (p.15)
To set the camcorder to CAMERA Standby mode (recording standby mode), open it.
To stop recording or to prevent from accidentally recording and wearing down the battery, close it.

18 **Hooks for shoulder strap** (p.46)

19 **Charging lamp** (p.8)
This orange lamp lights up while the battery pack is charging in the camcorder.

20 **Lithium battery compartment (inside the cover)** (p.10, 37)
Insert a lithium battery here with to activate the clock.

21 **Cassette compartment cover** (p.10, 12, 37)
When you insert or eject a cassette, open the whole of this cover with sliding the cover lock.

22 **MIC DC OUT jack**
This jack supplies power to an external microphone (not supplied).

23 **MIC jack**
Connect an optional external microphone (stereo or monaural). This jack also accepts a "plug-in-power" microphone. If the microphone has two plugs, connect the DC IN plug to the MIC DC OUT jack on the camcorder.

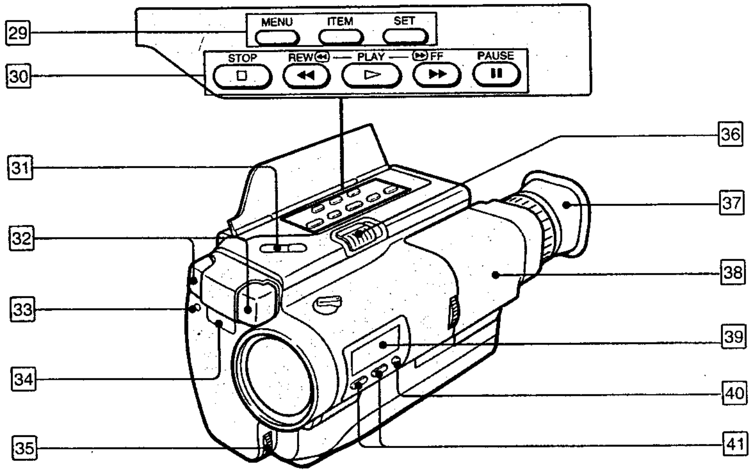
24 **PHONES (headphones) jack(stereo)** (p.18)
Connect headphones (not supplied) to monitor the sound while viewing the playback or the recording picture.

25 **Jack cover**

26 **Instant stand** (p.14, 24)
Lift up it to use as a handy camcorder stand.

27 **Tripod receptacle** (p.14)
Attach a tripod (not supplied) here.
When attaching a non-SONY tripod, make sure that the length of the camera mounting screw is shorter than 6.5 mm (9/32 inches). Otherwise, the screw might damage the inner part of the camcorder.

28 **Grip strap** (p.14)
Put your hand through the grip strap to hold the camcorder. Adjust the length of the strap so that your thumb can easily touch START/STOP.



29 **Menu operation buttons** (p.30, 32)
MENU: Press to display the menu in the viewfinder.
ITEM: Press to select the desired item.
SELECT: Press to set the mode of the selected item.

30 **Tape transport buttons** (p.22)
□ STOP
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fast forward)
❚❚ PAUSE
These buttons will function in PLAYER mode.

31 **EDITSEARCH button** (p.18, 34)
Press it to check the recorded scene in the viewfinder in CAMERA Standby mode.
+ side: to view the forward playback picture
– side: to view the reverse playback picture

32 **Built-in microphone (stereo)**

33 **Camera recording / battery lamp** (p.15, 50)
This red lamp lights up during camera recording. When it flashes, the battery is dead.

34 **Front remote sensor** (p.45)
Aim the Remote Commander here for remote control.

35 **Focus dial** (p.27)
Turn it to adjust the focus manually and to achieve a sharp focus in manual focus mode.

36 **Cover lock** (p.12, 37)
Slide it to open the cassette compartment cover.

37 **Eyecup** (p.14)
To achieve better camera recording, place your eye firmly against it.

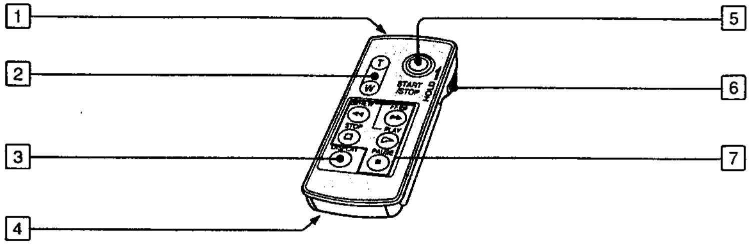
38 **Viewfinder** (p.13, 50, 51)
You can monitor the monochrome picture being recorded or played back. For details on the indicators in the viewfinder, see page 51.

39 **Display window** (p.50, 51)
Displays operating information such as the clock or the tape counter.

40 **RESET button** (p.15)
Press to reset the tape counter to zero.

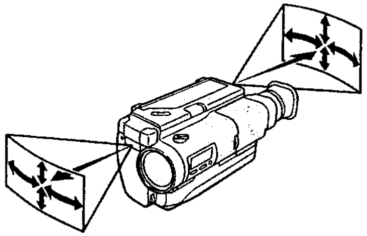
41 **DATE (+) and TIME (NEXT) buttons** (p.11, 17)
Press to set the clock or to display or turn off the date and time in the viewfinder. When setting the date and time, press DATE (+) button to advance numbers and press TIME (NEXT) button to set the next factor.

Wireless Remote Commander



1. **Transmitter**
   Point toward the remote sensor to control the camcorder after turning the POWER switch on the camcorder.
2. **Power zoom button**
3. **DISPLAY button**
   Press to display the viewfinder screen indicators on the TV when you connect the camcorder to a TV.
   To erase the indicators, press again.
4. **Lithium battery holder** (p.37)
5. **START/STOP button**
6. **HOLD switch**
   Slide in the direction of the arrow to prevent the buttons from being accidentally pressed. **Before using this Remote Commander, slide in the direction opposite to the arrow.**
7. **Tape transport buttons**

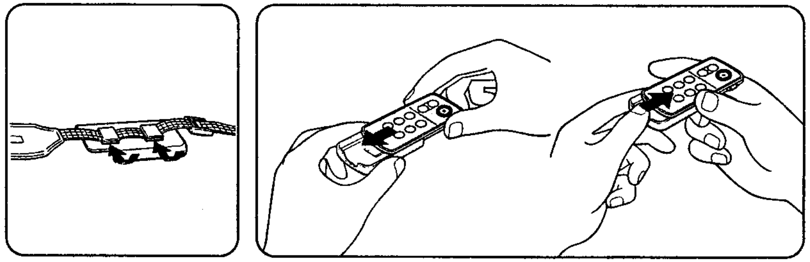
Remote Control Direction



Notes on the Remote Commander
- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VTRs to avoid remote control misoperation. If you use another Sony VTR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VTR with black paper.

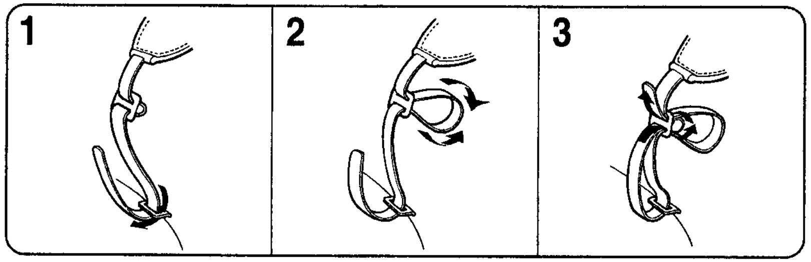
Using the Remote Commander holder

You can slide the Remote Commander holder onto the shoulder strap.



Attaching the shoulder strap

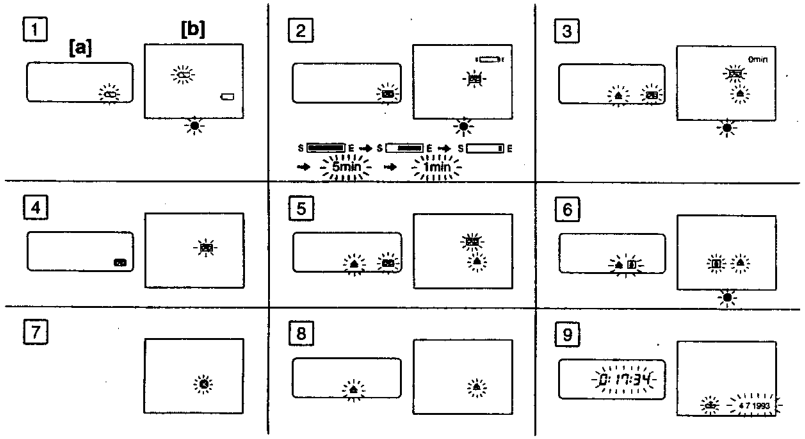
Attach the supplied shoulder strap to the hooks for the shoulder strap (p.43).



Indicators in the Display Window and the Viewfinder

Warning Indicators

If indicators flash in the display window [a] or the viewfinder [b] , or a caution lamp on the camcorder flashes, check the following:



1 Battery Remaining
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 The tape is near the end.

3 The tape has run out.

4 No tape has been inserted.

5 The tab on the tape is out (red) (p.35).

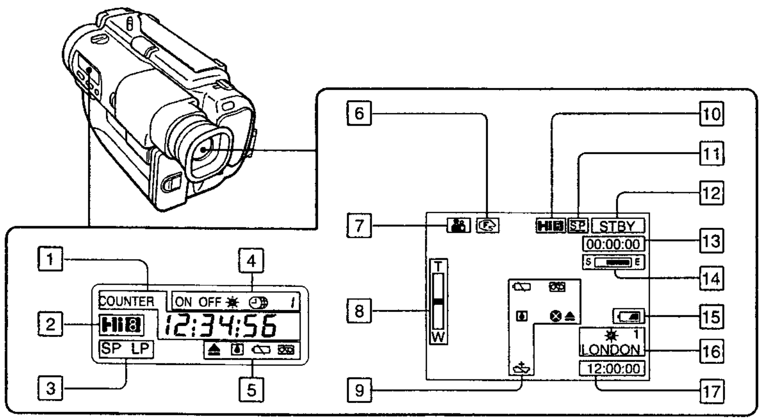
6 Moisture condensation has occurred (p.38).

7 The video heads may be contaminated (p.39).

8 Some other trouble has occurred.
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 The lithium battery is weak or the lithium battery is not installed (p.36).

Indicators In the Display Window and the Viewfinder



1 Tape counter, time or date indicator (p.11, 15)

2 Playing back or recording in Hi8 format (p.35)

3 Indicates the recording mode when recording/ playing back a tape (p.15, 35)

4 World clock indicators (p.32)

5 Warning indicators (p.50)

6 Manual focusing (p.26)

7 PROGRAM AE mode indicator (p.29)

8 Power zoom indicator (p.16) / Exposure indicator (p.28)

9 Warning indicators (p.50)

10 Lights up while recording in Hi8 system (p.15, 35)

11 Indicates the recording mode when recording/ playing back a tape (p.15, 35)

12 Tape transport mode (p.15, 22)

13 Tape counter (p.15)

14 Tape remaining indicator (p.50)

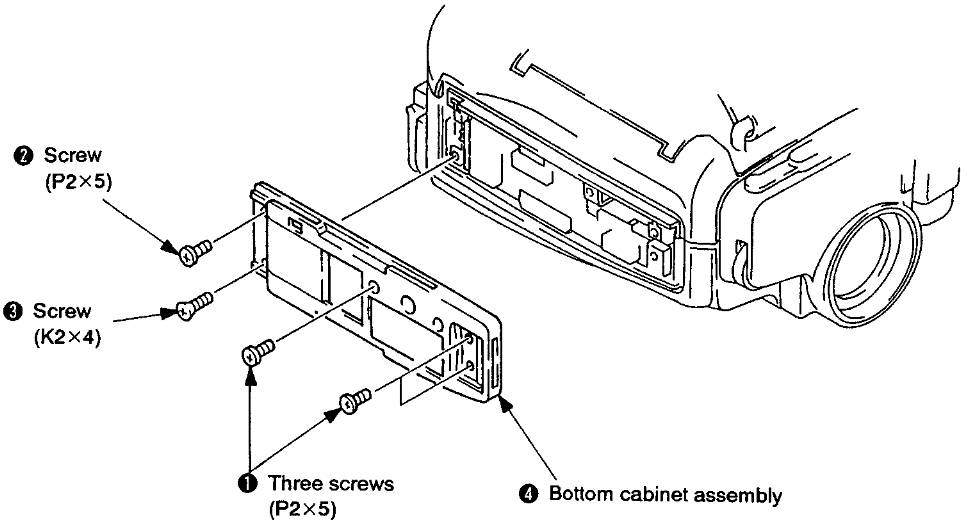
15 Battery remaining indicator (p.10)

16 World clock indicators (p.32)

17 Date or Time (p.17)

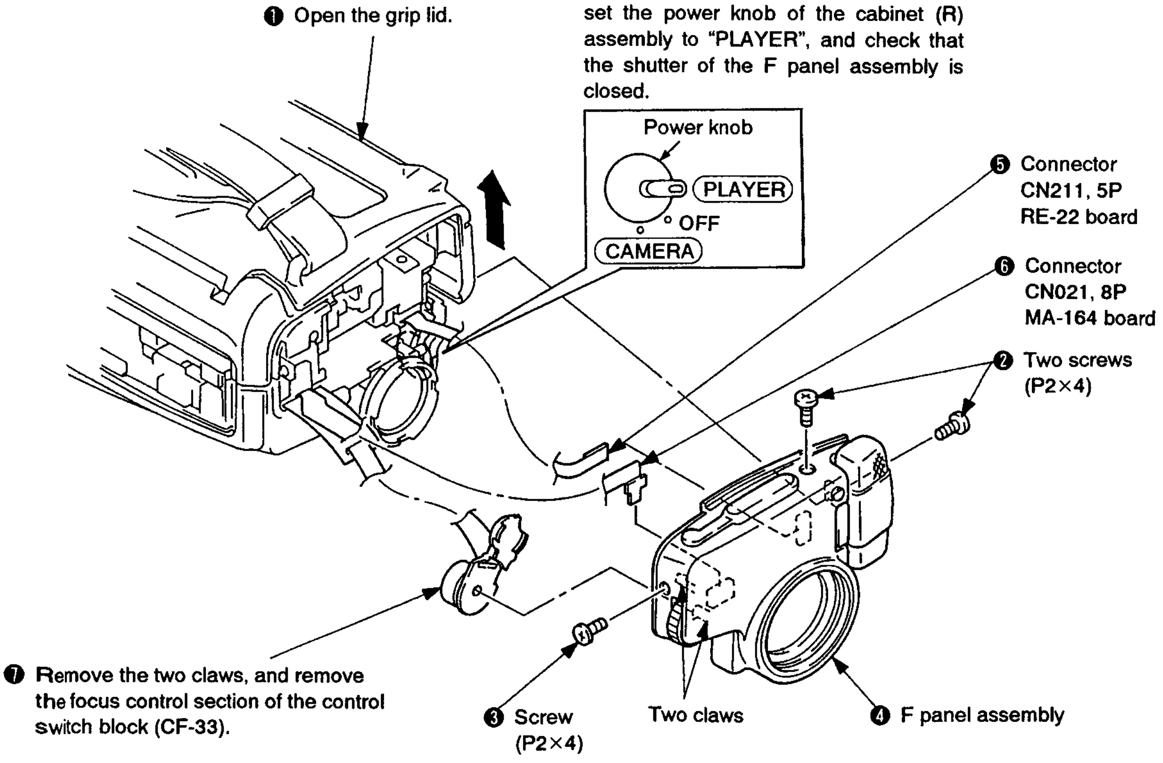
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF BOTTOM CABINET ASSEMBLY

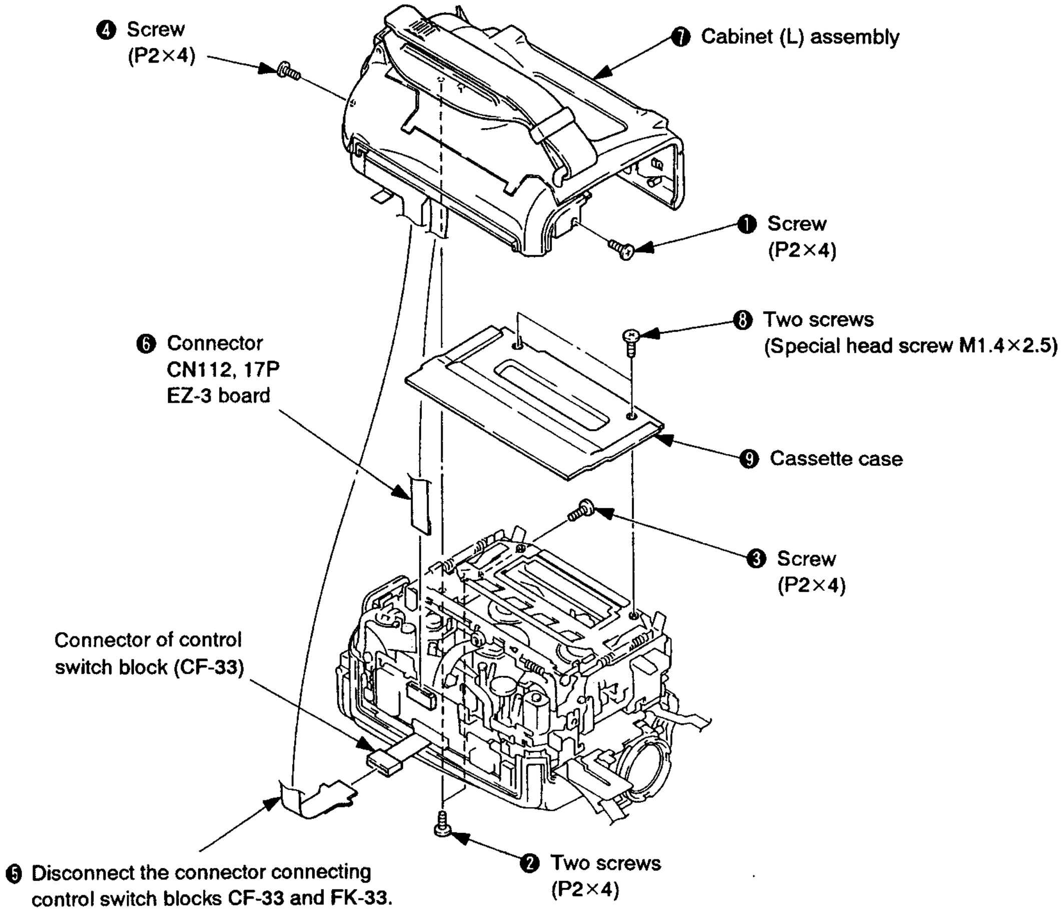

② Screw
(P2×5)
③ Screw
(K2×4)
① Three screws
(P2×5)
④ Bottom cabinet assembly

2-2. REMOVAL OF F PANEL ASSEMBLY

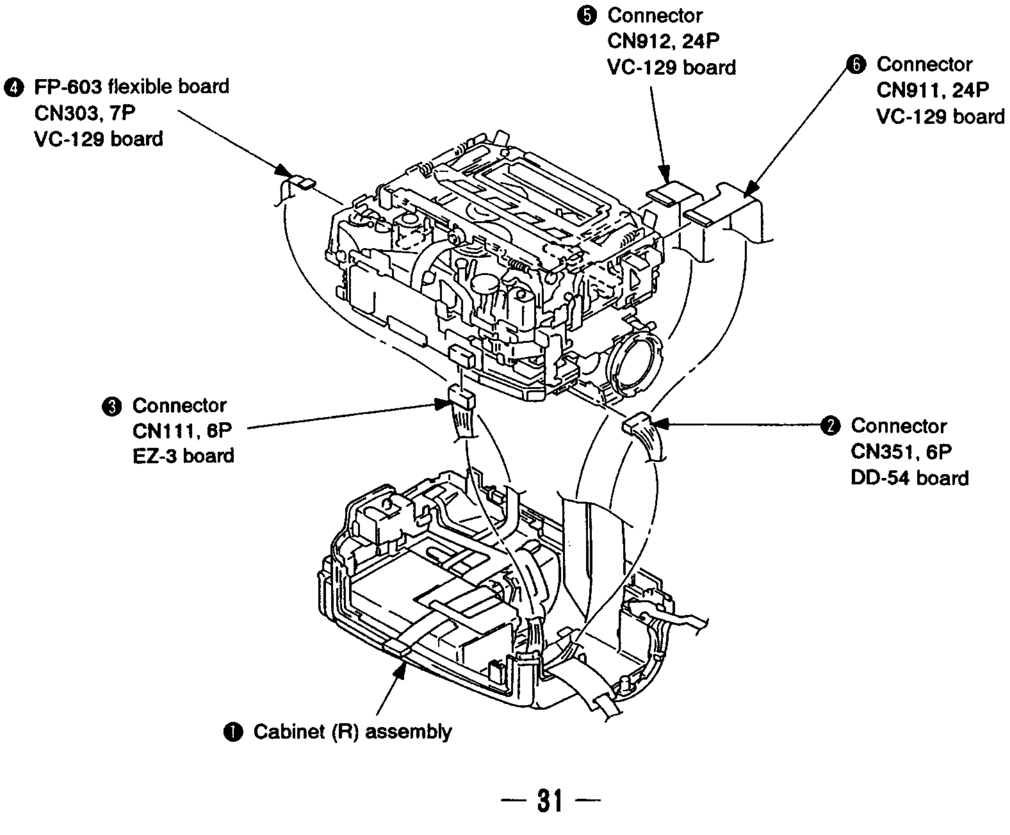
Note) When mounting the F panel assembly, set the power knob of the cabinet (R) assembly to "PLAYER", and check that the shutter of the F panel assembly is closed.


① Open the grip lid.
Power knob
PLAYER
OFF
CAMERA
⑤ Connector
CN211, 5P
RE-22 board
⑥ Connector
CN021, 8P
MA-164 board
② Two screws
(P2×4)
⑦ Remove the two claws, and remove the focus control section of the control switch block (CF-33).
③ Screw
(P2×4)
Two claws
④ F panel assembly

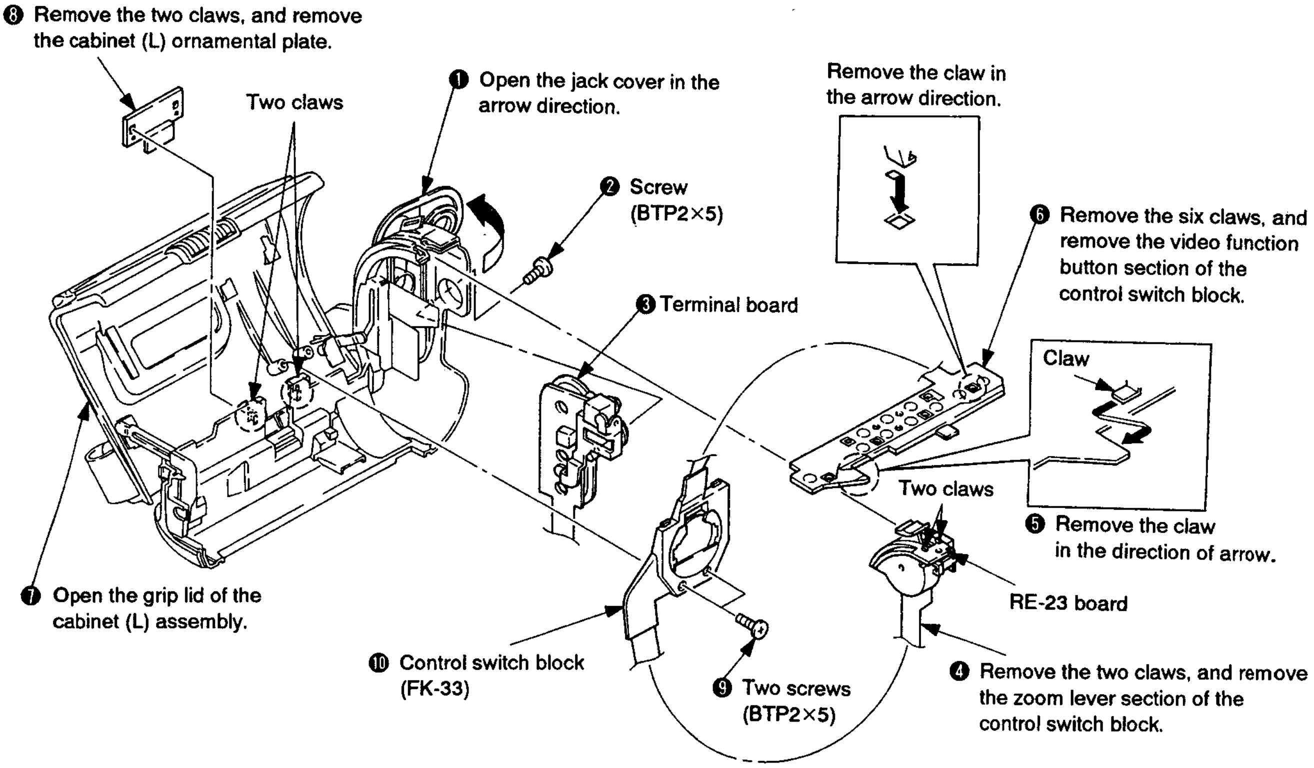
2-3. REMOVAL OF CABINET (L) ASSEMBLY AND CASSETTE CASE


❹ Screw (P2×4)
❼ Cabinet (L) assembly
❶ Screw (P2×4)
❽ Two screws (Special head screw M1.4×2.5)
❻ Connector CN112, 17P EZ-3 board
❾ Cassette case
❸ Screw (P2×4)
Connector of control switch block (CF-33)
❺ Disconnect the connector connecting control switch blocks CF-33 and FK-33.
❷ Two screws (P2×4)

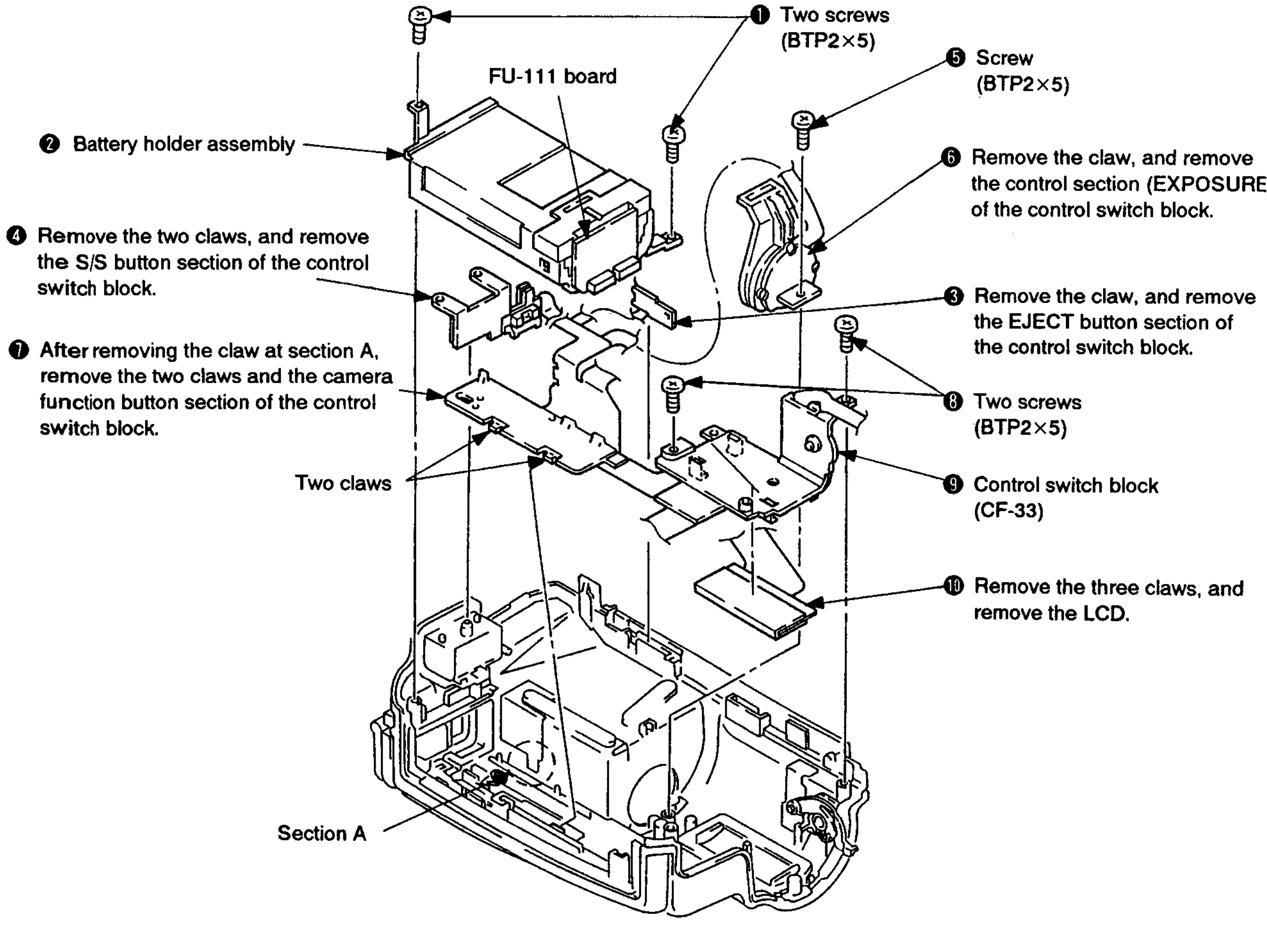
2-4. REMOVAL OF CABINET (R) ASSEMBLY


❺ Connector CN912, 24P VC-129 board
❻ Connector CN911, 24P VC-129 board
❹ FP-603 flexible board CN303, 7P VC-129 board
❸ Connector CN111, 6P EZ-3 board
❷ Connector CN351, 6P DD-54 board
❶ Cabinet (R) assembly

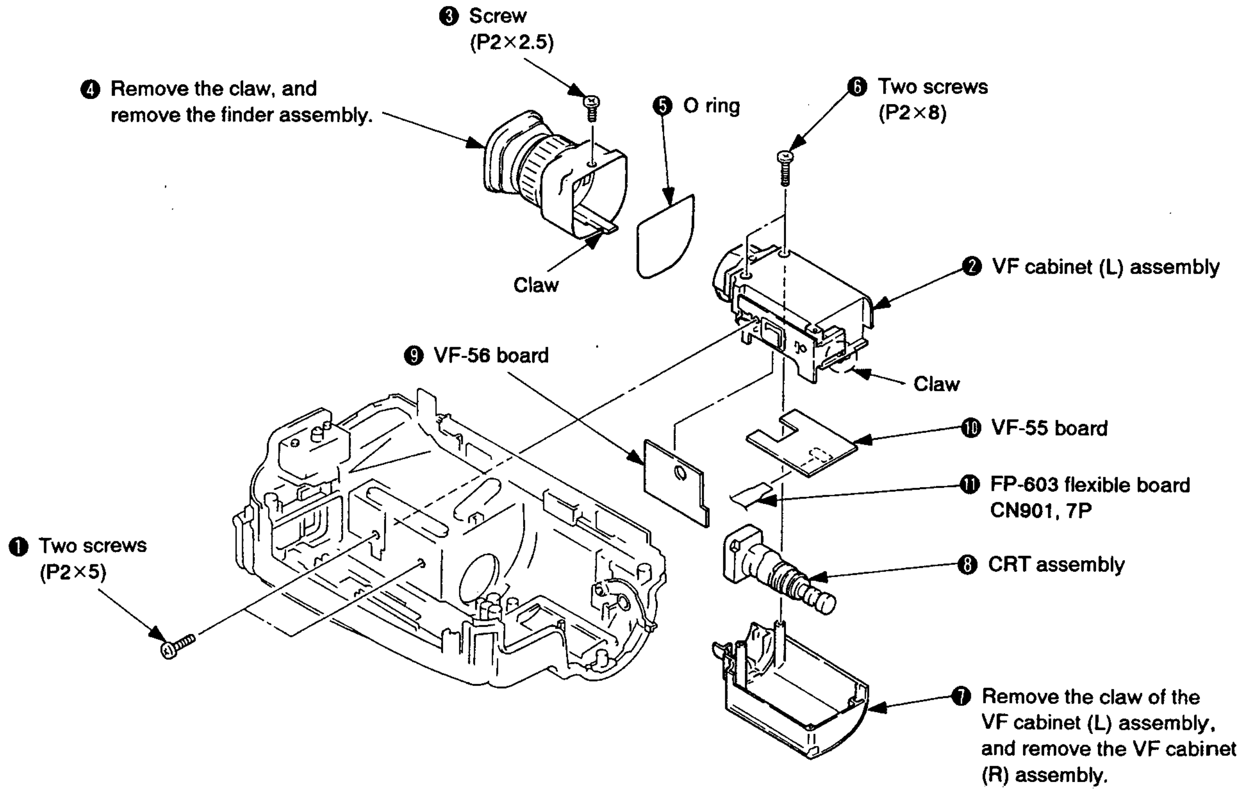
2-5. REMOVAL OF CONTROL SWITCH BLOCK (FK-33 BOARD), TERMINAL BOARD


❽ Remove the two claws, and remove the cabinet (L) ornamental plate.
Two claws
❶ Open the jack cover in the arrow direction.
Remove the claw in the arrow direction.
❷ Screw (BTP2×5)
❸ Terminal board
❻ Remove the six claws, and remove the video function button section of the control switch block.
Claw
Two claws
❺ Remove the claw in the direction of arrow.
RE-23 board
❼ Open the grip lid of the cabinet (L) assembly.
❿ Control switch block (FK-33)
❾ Two screws (BTP2×5)
❹ Remove the two claws, and remove the zoom lever section of the control switch block.

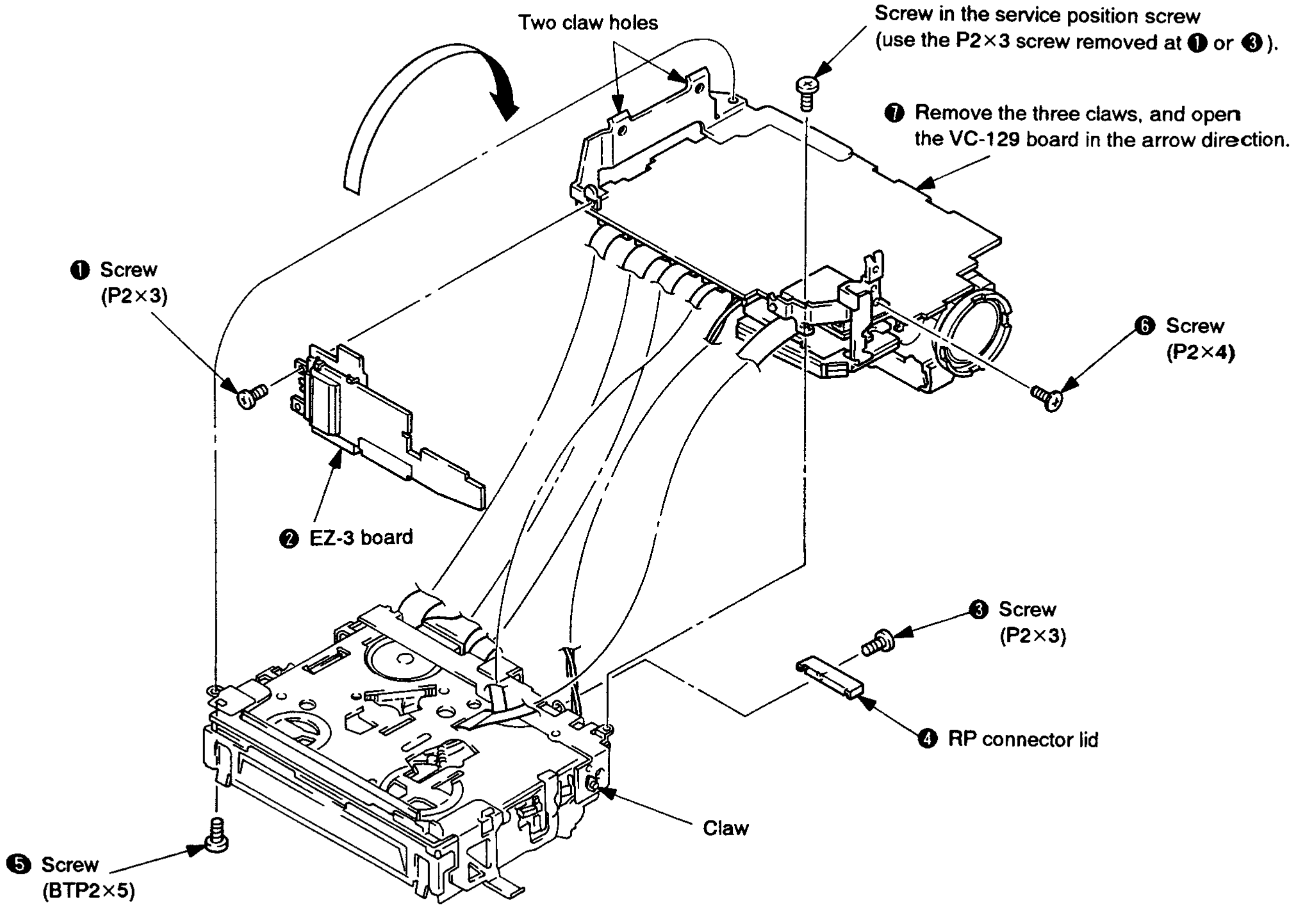
2-6. REMOVAL OF CONTROL SWITCH BLOCK (CF-33 BOARD), BATTERY HOLDER ASSEMBLY (FU-111 BOARD)


❶ Two screws (BTP2×5)
FU-111 board
❺ Screw (BTP2×5)
❷ Battery holder assembly
❻ Remove the claw, and remove the control section (EXPOSURE) of the control switch block.
❹ Remove the two claws, and remove the S/S button section of the control switch block.
❸ Remove the claw, and remove the EJECT button section of the control switch block.
❼ After removing the claw at section A, remove the two claws and the camera function button section of the control switch block.
❽ Two screws (BTP2×5)
Two claws
❾ Control switch block (CF-33)
❿ Remove the three claws, and remove the LCD.
Section A

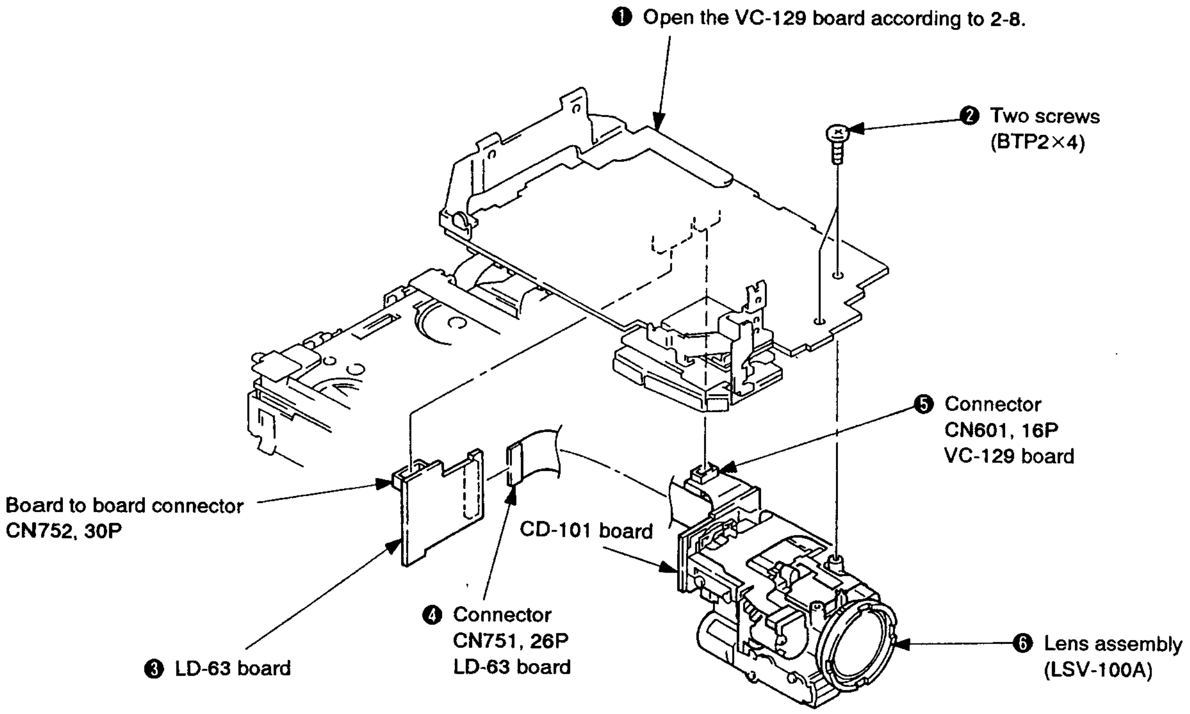
2-7. REMOVAL OF EVF ASSEMBLY (VF-55, VF-56 BOARDS)


❸ Screw (P2×2.5)
❹ Remove the claw, and remove the finder assembly.
❺ O ring
❻ Two screws (P2×8)
Claw
❷ VF cabinet (L) assembly
❾ VF-56 board
Claw
❿ VF-55 board
⓫ FP-603 flexible board CN901, 7P
❶ Two screws (P2×5)
❽ CRT assembly
❼ Remove the claw of the VF cabinet (L) assembly, and remove the VF cabinet (R) assembly.

2-8. OPENING OF VC-129 BOARD (SERVICE POSITION)


Two claw holes
Screw in the service position screw (use the P2×3 screw removed at ❶ or ❸).
❼ Remove the three claws, and open the VC-129 board in the arrow direction.
❶ Screw (P2×3)
❻ Screw (P2×4)
❷ EZ-3 board
❸ Screw (P2×3)
❹ RP connector lid
Claw
❺ Screw (BTP2×5)

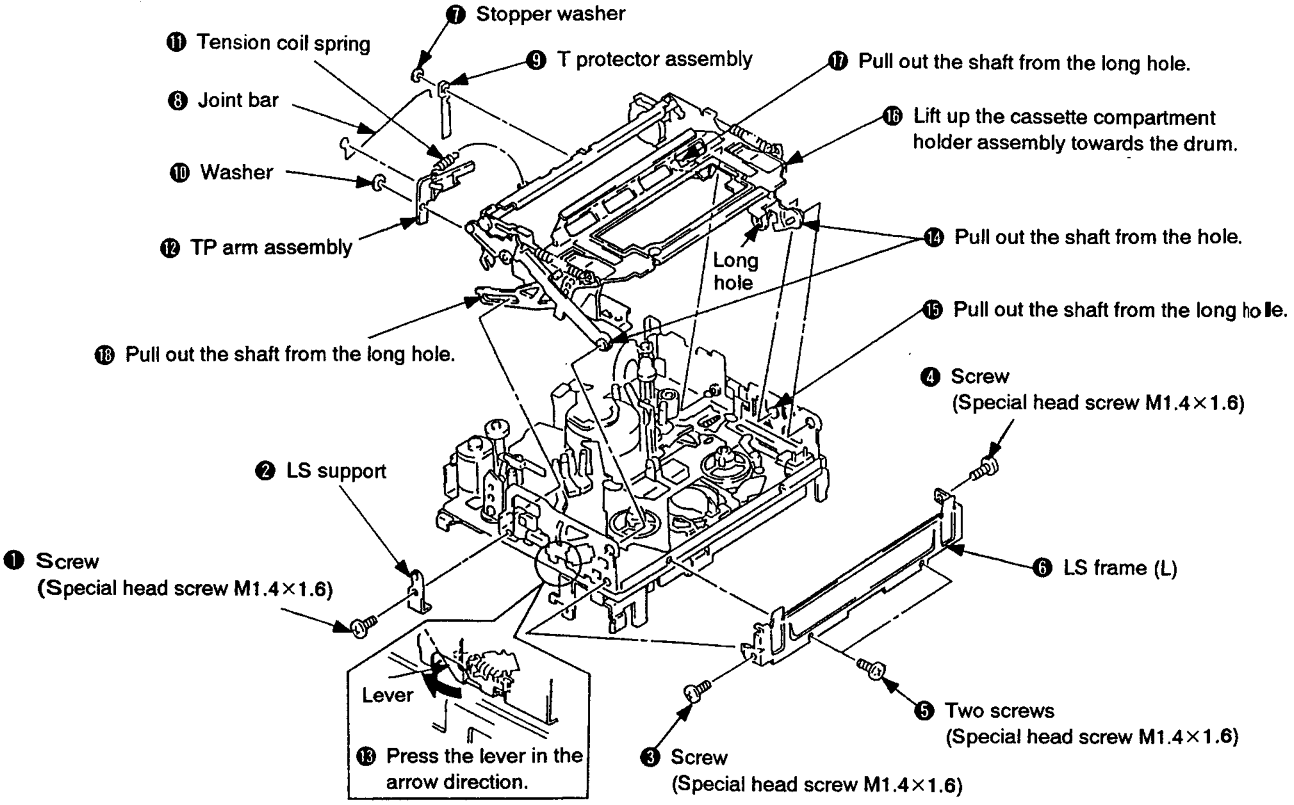
2-9. REMOVAL OF LENS ASSEMBLY (LSV-100A)



① Open the VC-129 board according to 2-8.
② Two screws (BTP2×4)
⑤ Connector CN601, 16P VC-129 board
Board to board connector CN752, 30P
CD-101 board
④ Connector CN751, 26P LD-63 board
③ LD-63 board
⑥ Lens assembly (LSV-100A)

2-10. REMOVAL OF CASSETTE COMPARTMENT HOLDER ASSEMBLY

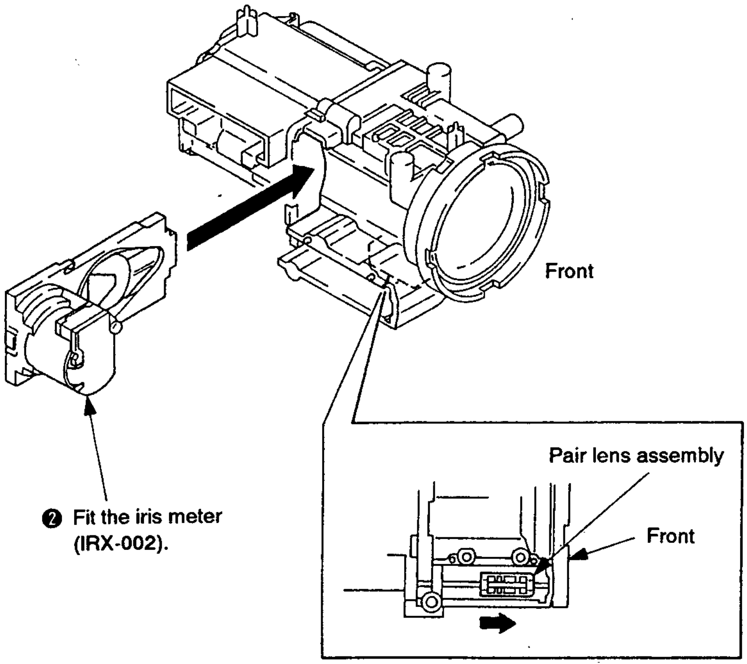
In the beginning, set to USE mode.
(When setting to USE mode, see "2-4. Handling of Mode Selector" in "8 mm video mechanical adjustment manual II FL Mechanism (Q mechanism)".)



⑦ Stopper washer
⑪ Tension coil spring
⑨ T protector assembly
⑰ Pull out the shaft from the long hole.
⑧ Joint bar
⑯ Lift up the cassette compartment holder assembly towards the drum.
⑩ Washer
⑫ TP arm assembly
⑭ Pull out the shaft from the hole.
Long hole
⑮ Pull out the shaft from the long hole.
⑱ Pull out the shaft from the long hole.
④ Screw (Special head screw M1.4×1.6)
② LS support
① Screw (Special head screw M1.4×1.6)
⑥ LS frame (L)
Lever
⑬ Press the lever in the arrow direction.
⑤ Two screws (Special head screw M1.4×1.6)
③ Screw (Special head screw M1.4×1.6)

2-11. MOUNTING OF IRIS METER (IRX-002)

Note) When replacing the lens or its component parts (motor, iris, etc.), the iris and flange back must be adjusted.

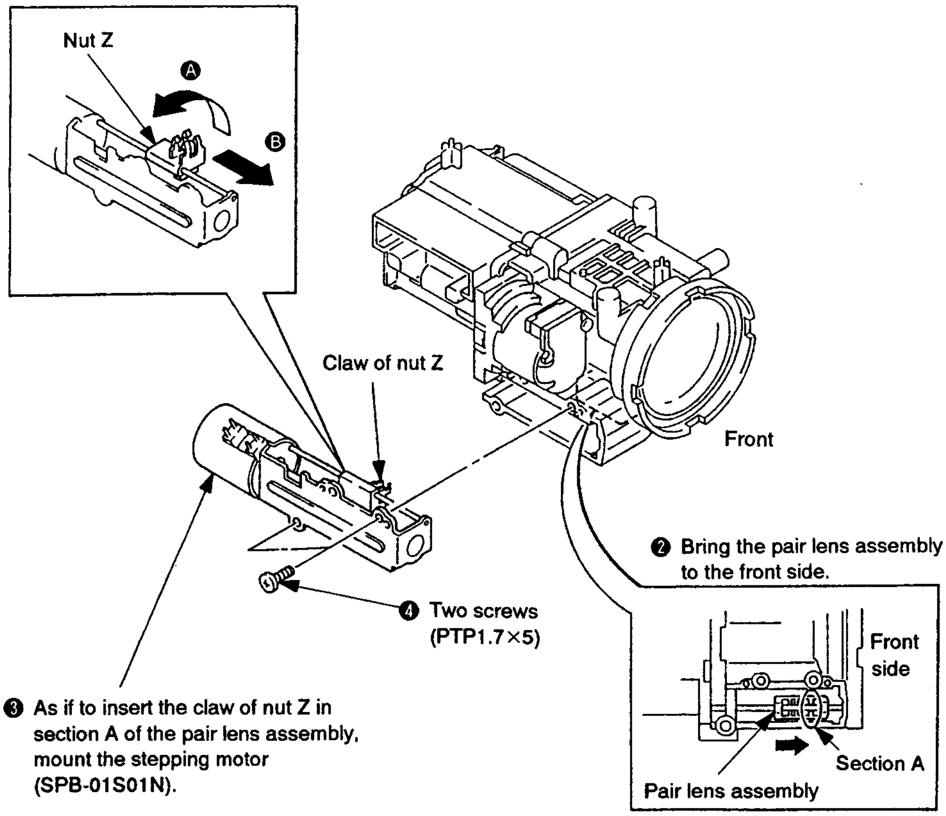

Front
Pair lens assembly
Front

❷ Fit the iris meter (IRX-002).

❶ Bring the pair lens assembly to the front.

2-12. MOUNTING OF STEPPING MOTOR (SPB-01S01N)

❶ Raise nut Z in the arrow direction Ⓐ, bring it towards direction Ⓑ and clamp it.

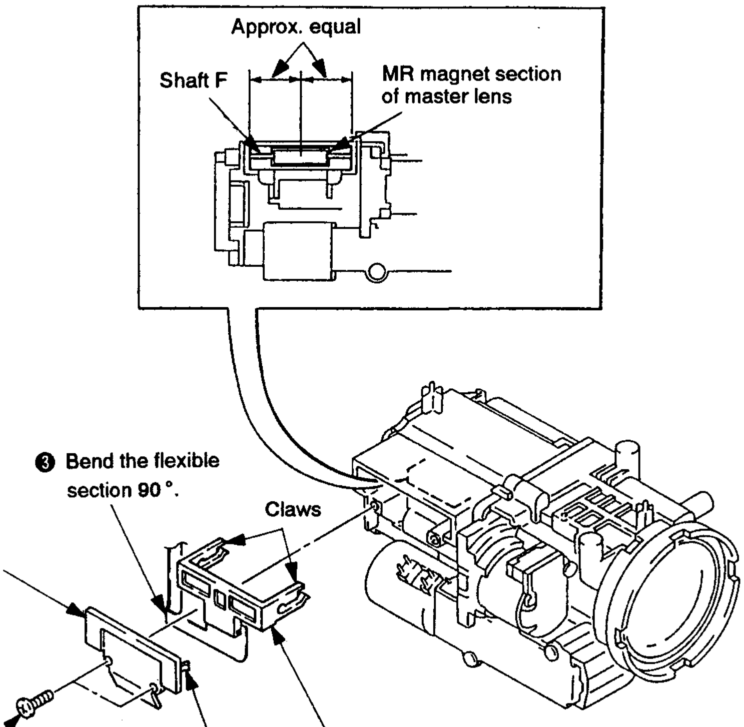

Nut Z
Ⓐ
Ⓑ
Claw of nut Z
Front
Front side
Section A
Pair lens assembly

❷ Bring the pair lens assembly to the front side.

❹ Two screws (PTP1.7×5)

❸ As if to insert the claw of nut Z in section A of the pair lens assembly, mount the stepping motor (SPB-01S01N).

2-13. MOUNTING OF MR SENSOR SECTION WHEN MOUNTING M FLEXIBLE BLOCK ASSEMBLY


Approx. equal
Shaft F
MR magnet section of master lens
Claws
Claw

① Bring the MR magnet section of the master lens to the center.

② Insert the MR holder so that the MR magnet section fits between the claws. Insert the claw of the MR holder in the shaft F as well.

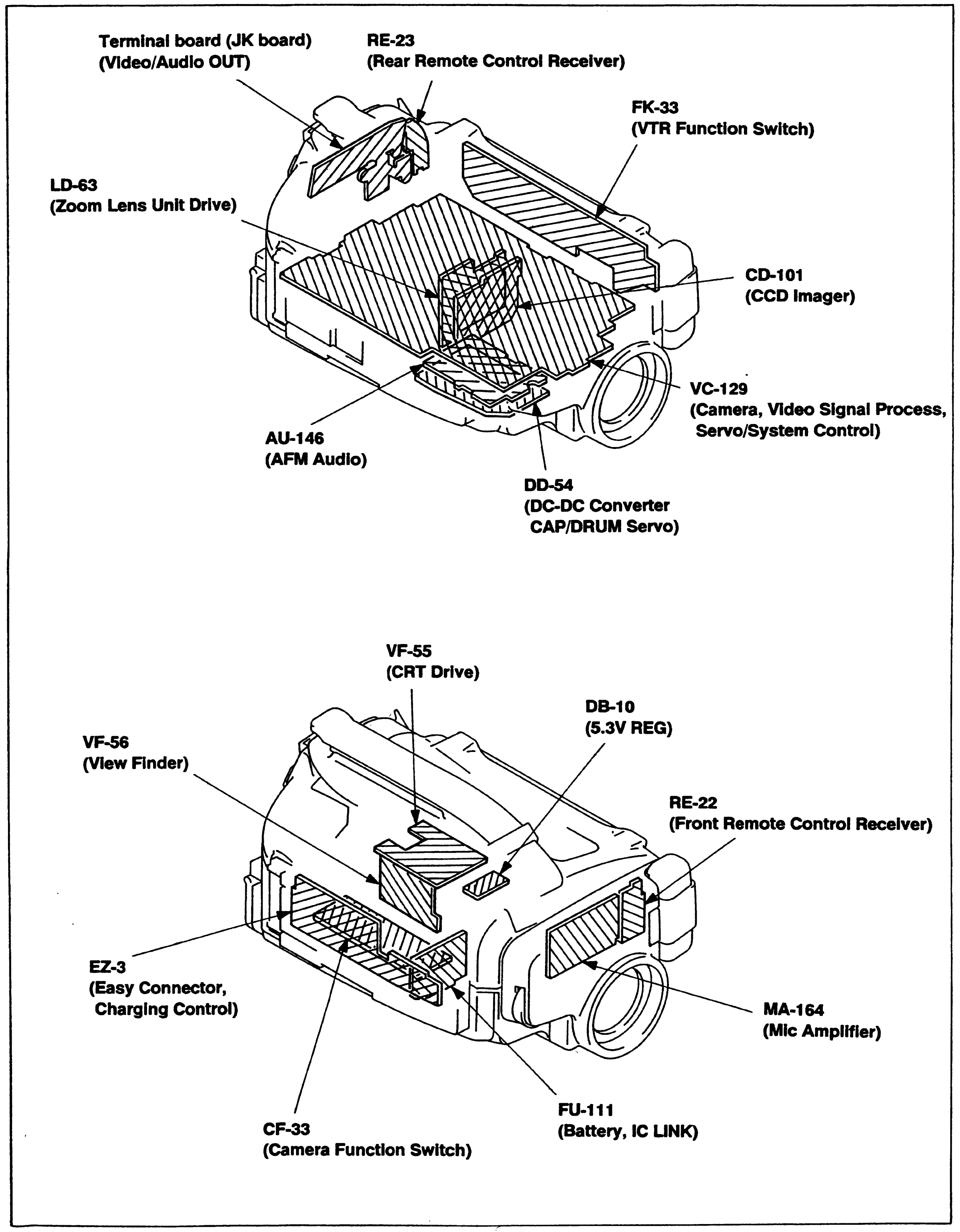
③ Bend the flexible section 90 °.

④ Fit the two claws and mount the MR retainer.

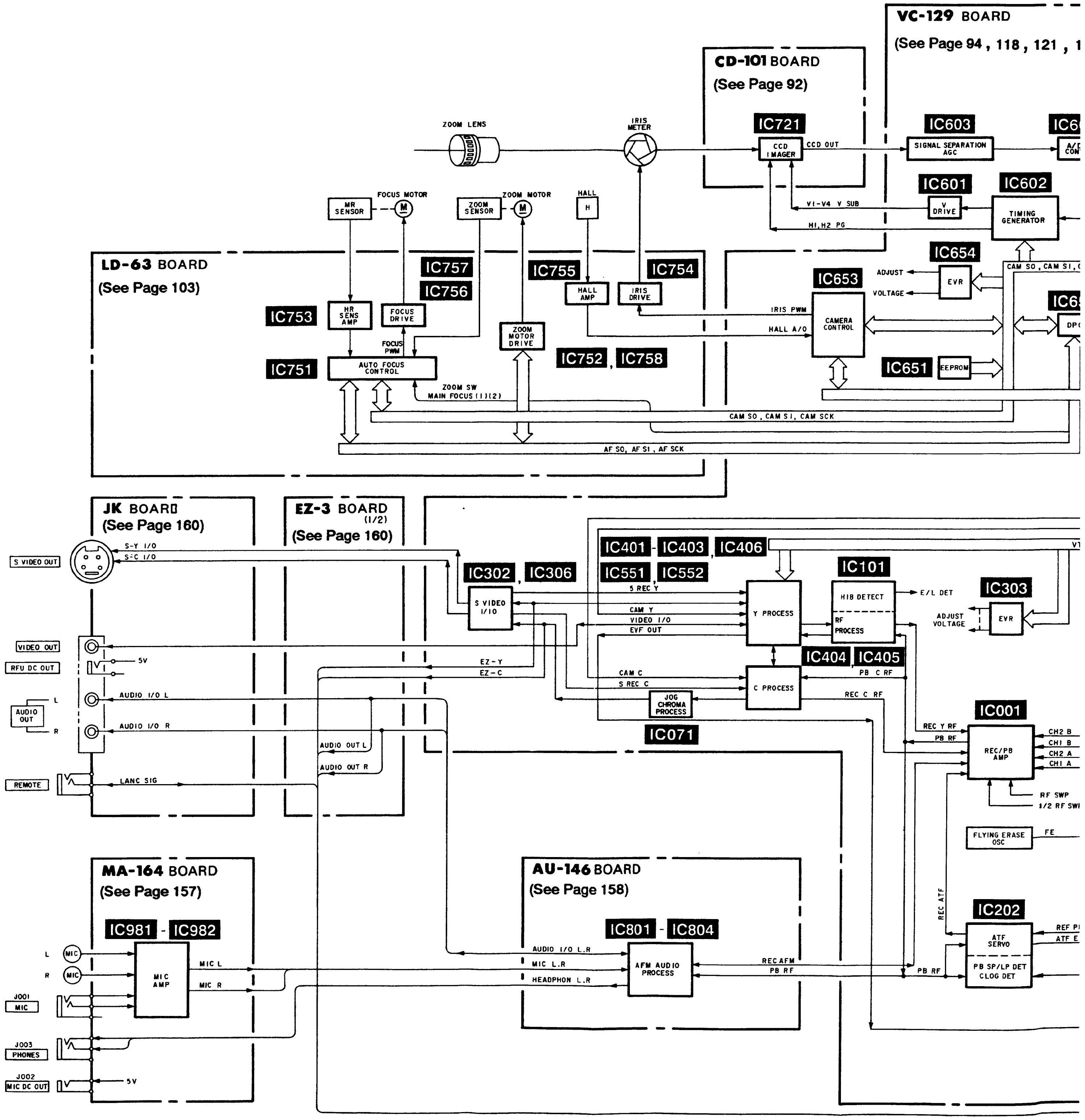
⑤ Two screws (PTP1.7×5)

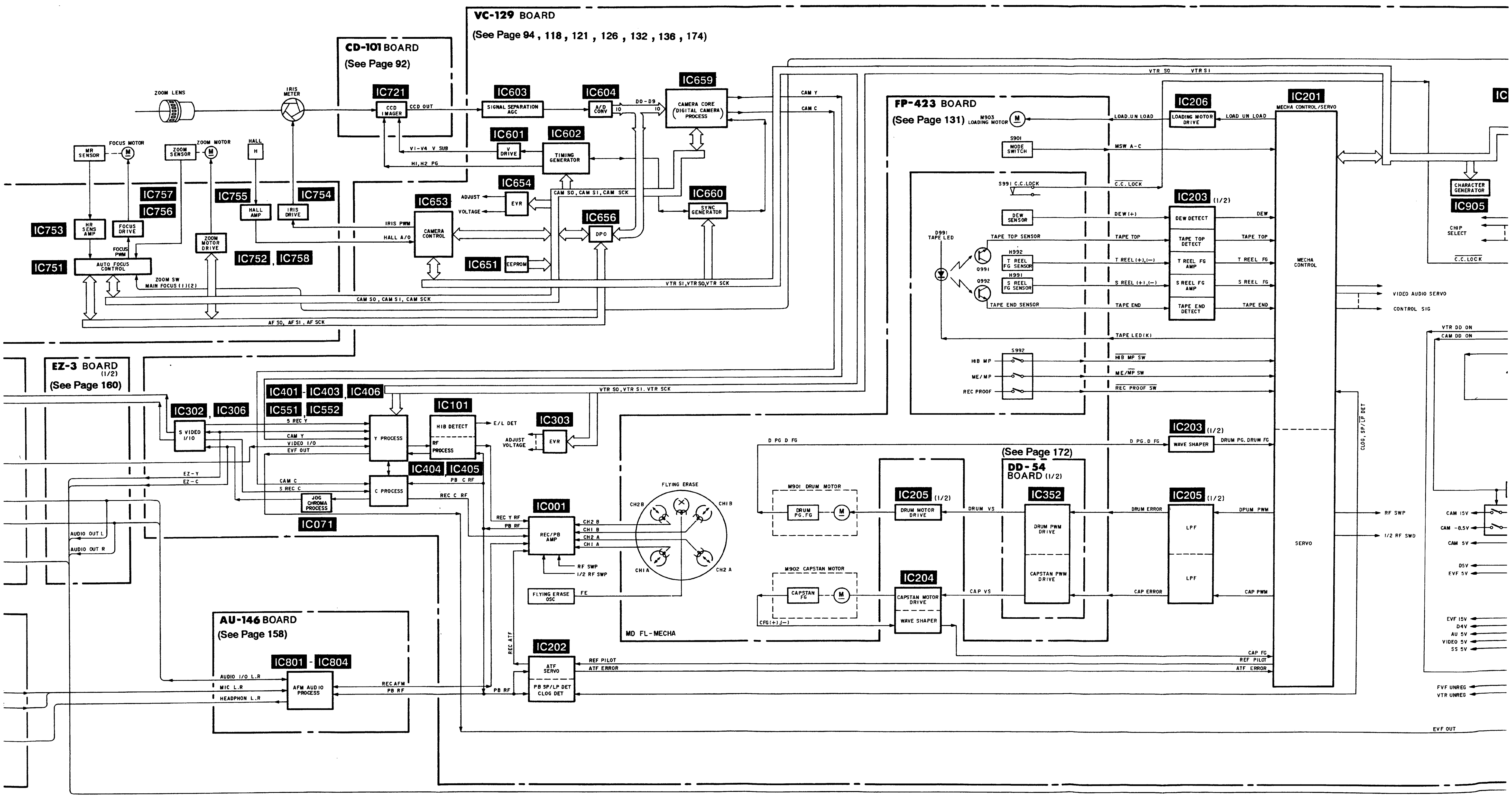
SECTION 3
DIAGRAMS

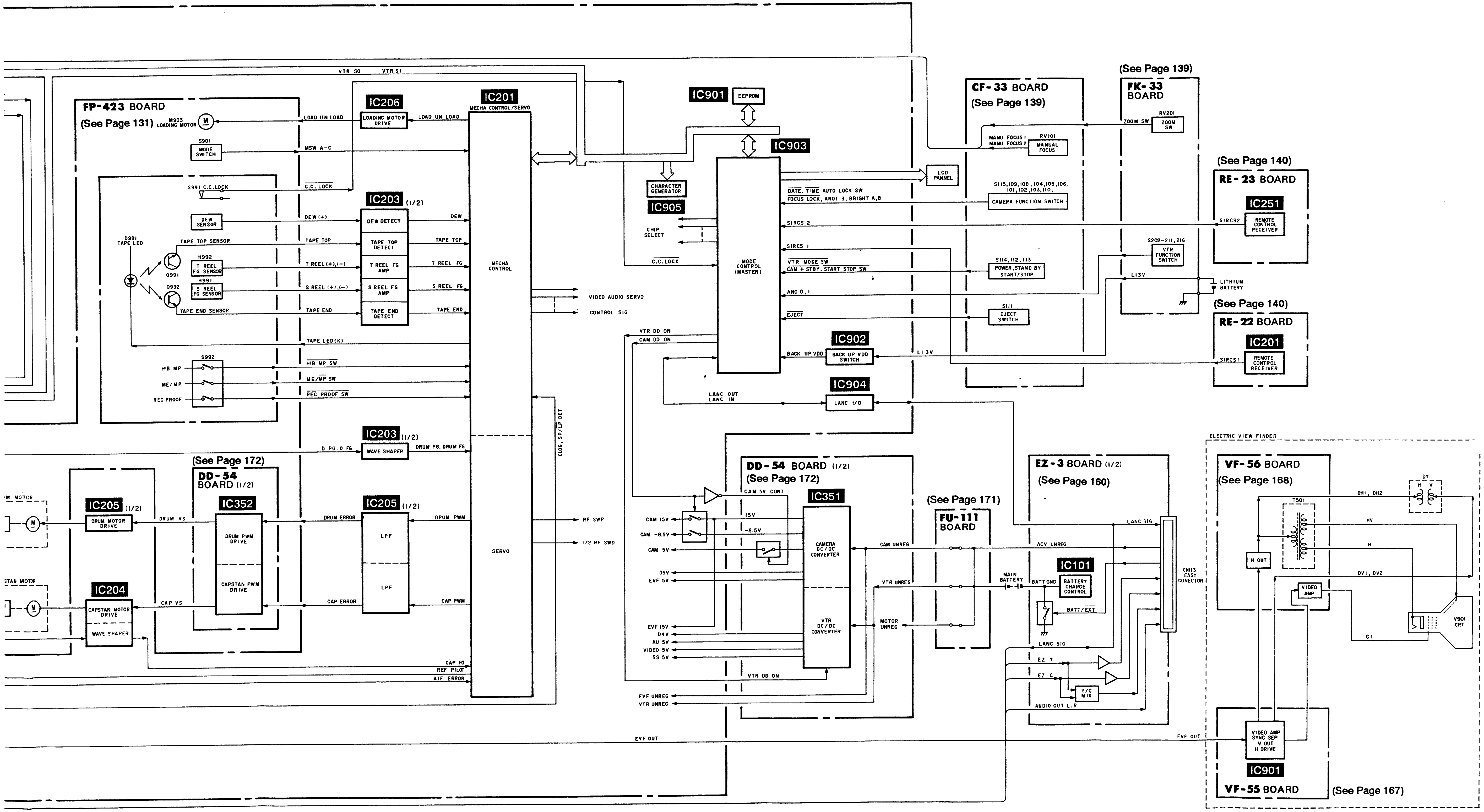
3-1. CIRCUIT BOARDS LOCATION


Terminal board (JK board)
(Video/Audio OUT)
RE-23
(Rear Remote Control Receiver)
FK-33
(VTR Function Switch)
LD-63
(Zoom Lens Unit Drive)
CD-101
(CCD Imager)
VC-129
(Camera, Video Signal Process, Servo/System Control)
AU-146
(AFM Audio)
DD-54
(DC-DC Converter CAP/DRUM Servo)
VF-55
(CRT Drive)
DB-10
(5.3V REG)
VF-56
(View Finder)
RE-22
(Front Remote Control Receiver)
EZ-3
(Easy Connector, Charging Control)
MA-164
(Mic Amplifier)
CF-33
(Camera Function Switch)
FU-111
(Battery, IC LINK)

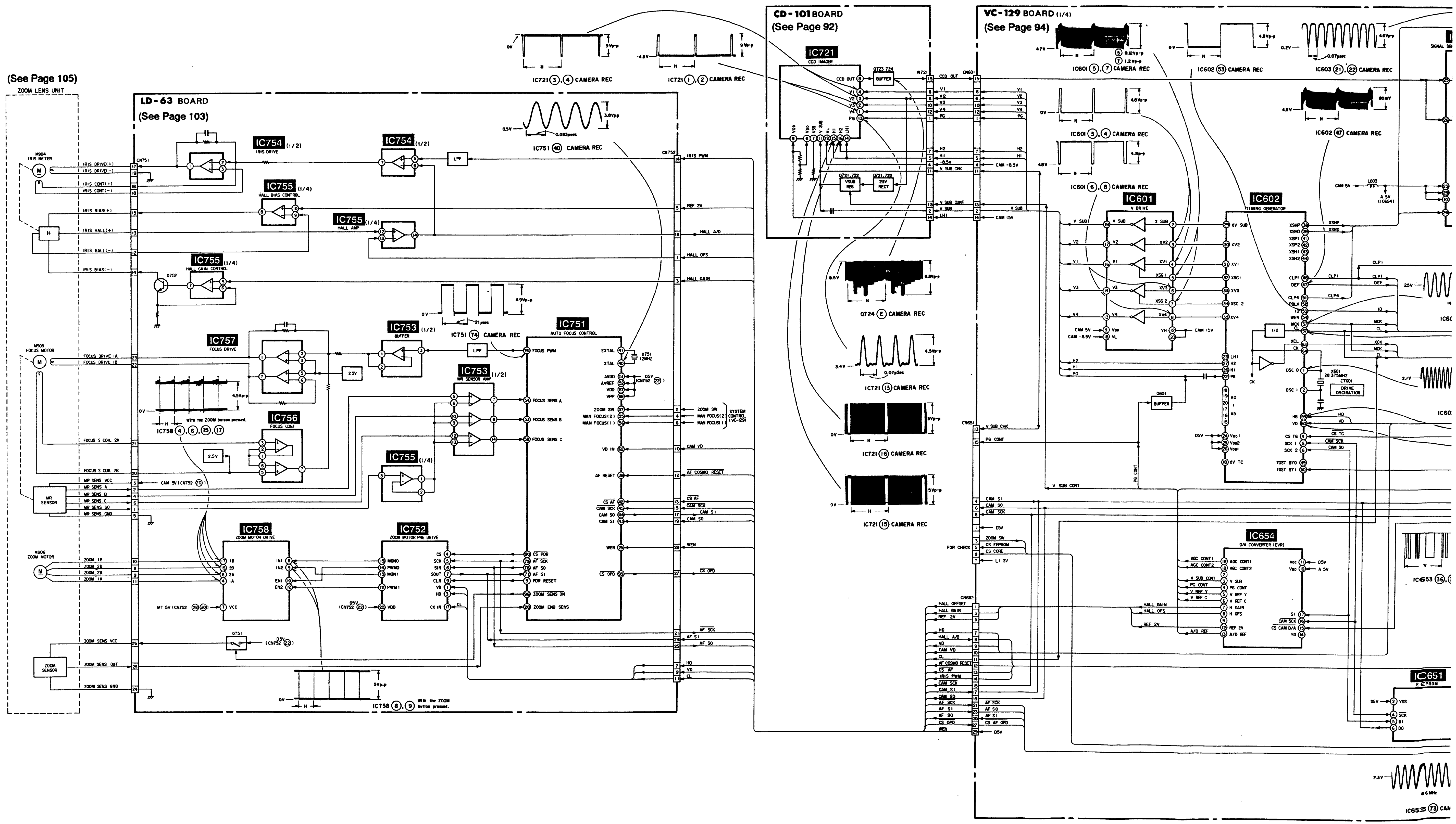
3-2. OVERALL BLOCK DIAGRAM

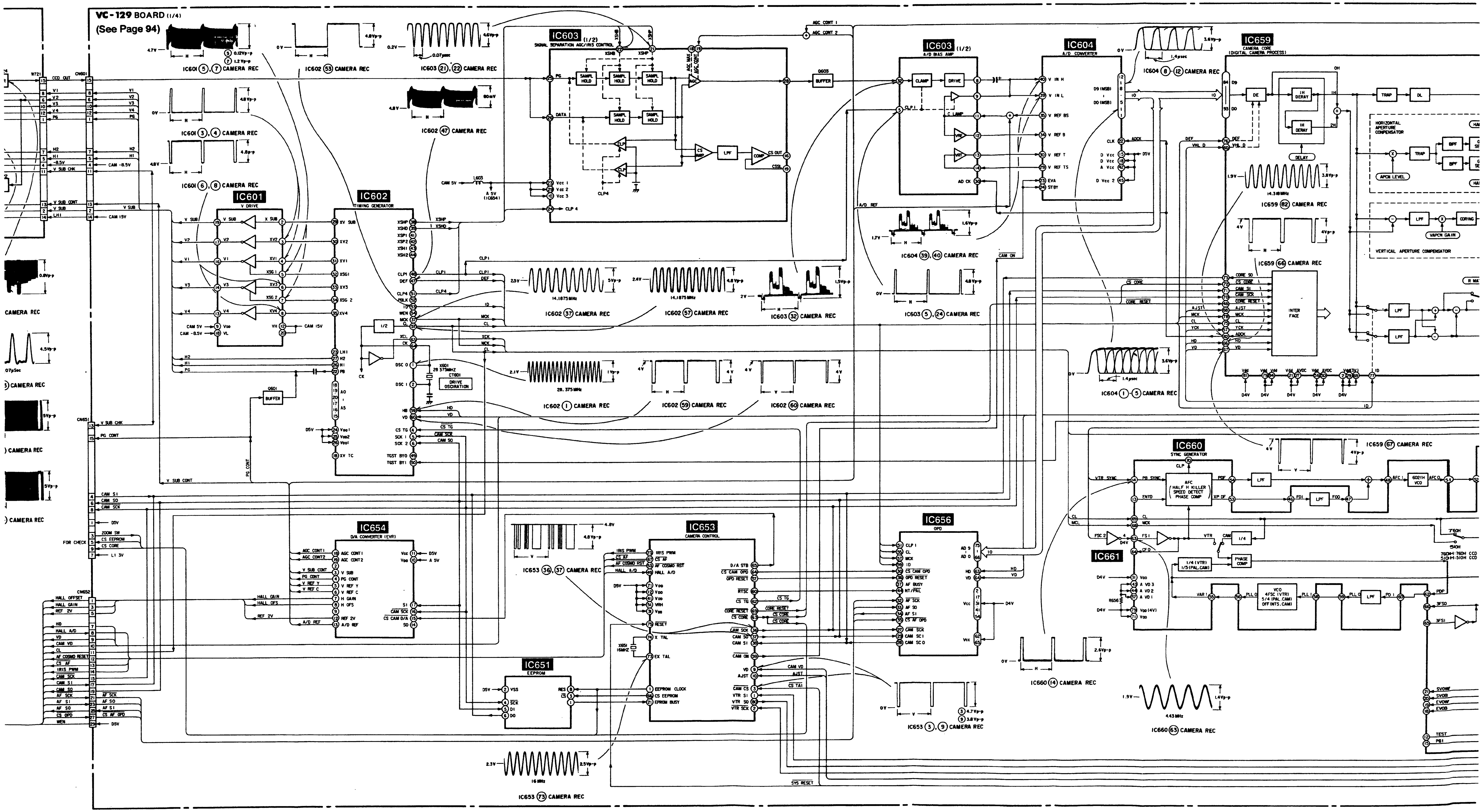

VC-129 BOARD
(See Page 94, 118, 121, 1
CD-101 BOARD
(See Page 92)
IC721
CCD IMAGER
CCD OUT
ZOOM LENS
IRIS METER
IC603
SIGNAL SEPARATION AGC
IC6
A/D CON
IC601
V DRIVE
IC602
TIMING GENERATOR
V1-V4 V SUB
H1,H2 PG
FOCUS MOTOR
MR SENSOR
ZOOM SENSOR
ZOOM MOTOR
HALL
H
LD-63 BOARD
(See Page 103)
IC757
IC756
IC755
IC754
IC753
HR SENS AMP
FOCUS DRIVE
FOCUS PWM
IC751
AUTO FOCUS CONTROL
ZOOM SW
MAIN FOCUS (1)(2)
ZOOM MOTOR DRIVE
HALL AMP
IRIS DRIVE
IC752, IC758
IC654
EVR
ADJUST
VOLTAGE
IC653
CAMERA CONTROL
IRIS PWM
HALL A/O
IC651
EEPROM
IC6
DP
CAM SO, CAM SI, C
CAM SO, CAM SI, CAM SCK
AF SO, AF SI, AF SCK
JK BOARD
(See Page 160)
EZ-3 BOARD (1/2)
(See Page 160)
S VIDEO OUT
S-Y I/O
S-C I/O
IC302, IC306
S VIDEO I/IO
VIDEO OUT
RFU DC OUT
5V
AUDIO OUT
L
R
AUDIO I/O L
AUDIO I/O R
EZ-Y
EZ-C
AUDIO OUT L
AUDIO OUT R
REMOTE
LANC SIG
IC401 - IC403, IC406
IC551, IC552
5 REC Y
CAM Y
VIDEO I/O
EVF OUT
Y PROCESS
IC101
HIB DETECT
RF PROCESS
E/L DET
IC303
EVR
ADJUST VOLTAGE
V1
IC404, IC405
PB C RF
CAM C
S REC C
C PROCESS
JOG CHROMA PROCESS
IC071
REC C RF
IC001
REC Y RF
PB RF
REC/PB AMP
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SW
FLYING ERASE OSC
FE
REC ATF
IC202
ATF SERVO
PB SP/LP DET
CLOG DET
REF P
ATF E
MA-164 BOARD
(See Page 157)
IC981 - IC982
L
R
MIC
MIC AMP
MIC L
MIC R
J001
MIC
J003
PHONES
J002
MIC DC OUT
5V
AU-146 BOARD
(See Page 158)
IC801 - IC804
AUDIO I/O L.R
MIC L.R
HEADPHON L.R
AFM AUDIO PROCESS
REC AFM
PB RF

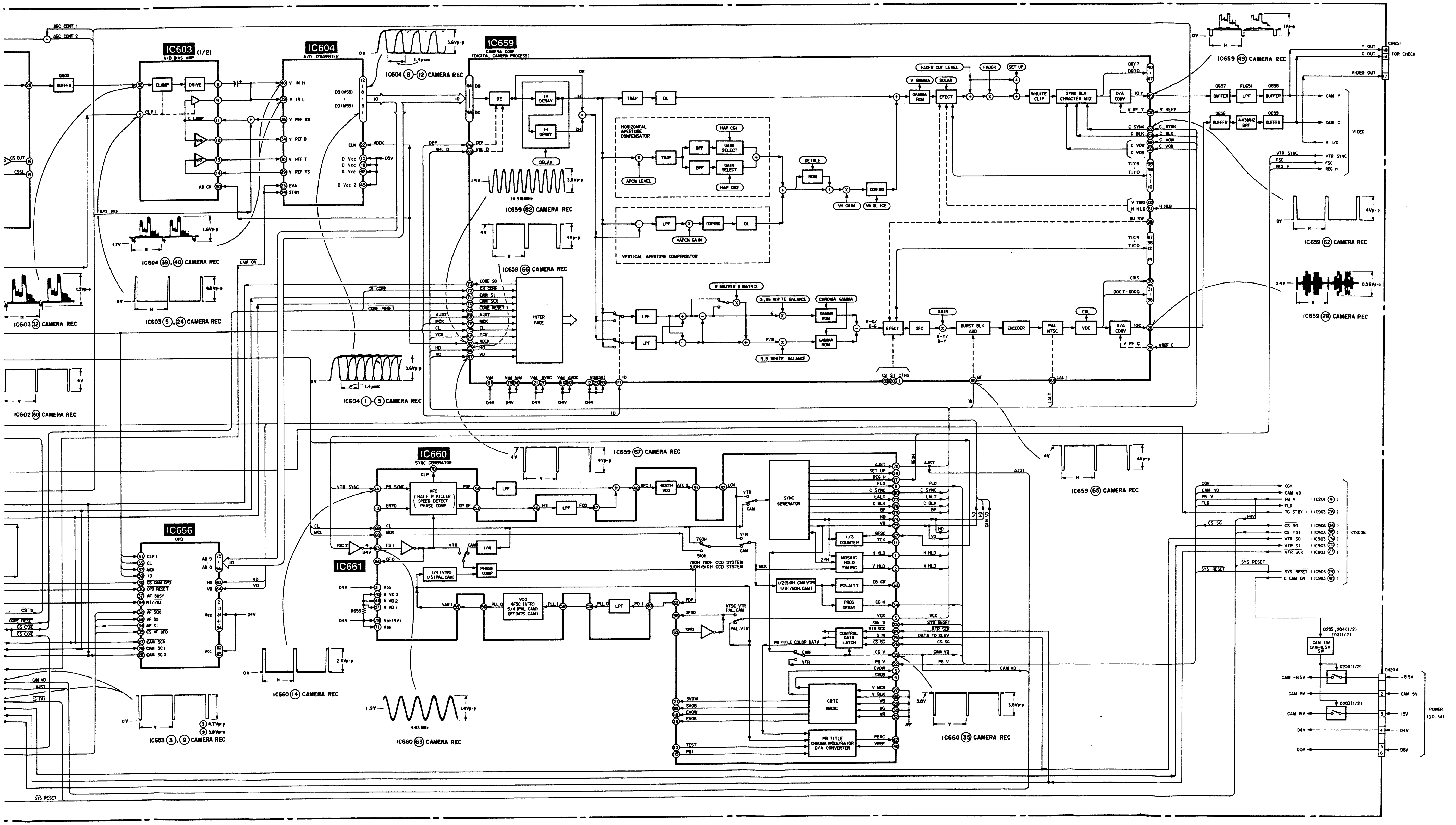

VC-129 BOARD
(See Page 94 , 118 , 121 , 126 , 132 , 136 , 174)
CD-101 BOARD
(See Page 92)
ZOOM LENS
IRIS METER
IC721
CCD IMAGER
CCD OUT
IC603
SIGNAL SEPARATION AGC
IC604
A/D CONV
D0-D9
IC659
CAMERA CORE (DIGITAL CAMERA PROCESS)
CAM Y
CAM C
IC601
V DRIVE
V1-V4 V SUB
H1,H2 PG
IC602
TIMING GENERATOR
IC654
EVR
ADJUST
VOLTAGE
IC653
CAMERA CONTROL
IRIS PWM
HALL A/O
IC651
EEPROM
IC656
DPO
IC660
SYNC GENERATOR
CAM SO, CAM SI, CAM SCK
VTR SI,VTR SO,VTR SCK
AF SO, AF SI, AF SCK
MR SENSOR
FOCUS MOTOR
ZOOM SENSOR
ZOOM MOTOR
HALL
H
IC757
IC756
IC755
IC754
HALL AMP
IRIS DRIVE
IC753
MR SENS AMP
FOCUS DRIVE
ZOOM MOTOR DRIVE
FOCUS PWM
IC751
AUTO FOCUS CONTROL
IC752
IC758
ZOOM SW
MAIN FOCUS (1)(2)
EZ-3 BOARD (1/2)
(See Page 160)
IC302
IC306
S VIDEO I/O
IC401 - IC403
IC406
IC551
IC552
5 REC Y
CAM Y
VIDEO I/O
EVF OUT
Y PROCESS
IC101
HIB DETECT
RF PROCESS
E/L DET
IC303
EVR
ADJUST VOLTAGE
VTR SO, VTR SI, VTR SCK
IC404
IC405
PB C RF
REC C RF
CAM C
S REC C
C PROCESS
JOG CHROMA PROCESS
IC071
EZ-Y
EZ-C
AUDIO OUT L
AUDIO OUT R
IC001
REC Y RF
PB RF
REC/PB AMP
CH2 B
CH1 B
CH2 A
CH1 A
RF SWP
1/2 RF SWP
FLYING ERASE OSC
FE
FLYING ERASE
CH2 B
CH1 B
CH1 A
CH2 A
MD FL-MECHA
REC ATF
IC202
ATF SERVO
PB SP/LP DET
CLOG DET
PB RF
REF PILOT
ATF ERROR
AU-146 BOARD
(See Page 158)
IC801 - IC804
AUDIO I/O L.R
MIC L.R
HEADPHON L.R
AFM AUDIO PROCESS
REC AFM
PB RF
FP-423 BOARD
(See Page 131)
M903 LOADING MOTOR
S901 MODE SWITCH
S991 C.C.LOCK
DEW SENSOR
D991 TAPE LED
TAPE TOP SENSOR
Q991
Q992
H992 T REEL FG SENSOR
H991 S REEL FG SENSOR
TAPE END SENSOR
S992
HIB MP
ME/MP
REC PROOF
VTR SO
VTR SI
LOAD,UN LOAD
MSW A-C
C.C. LOCK
DEW (+)
TAPE TOP
T REEL (+),(−)
S REEL (+),(−)
TAPE END
TAPE LED(K)
HIB MP SW
ME/MP SW
REC PROOF SW
IC206
LOADING MOTOR DRIVE
LOAD UN LOAD
IC203 (1/2)
DEW DETECT
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
DEW
TAPE TOP
T REEL FG
S REEL FG
TAPE END
IC201
MECHA CONTROL/SERVO
MECHA CONTROL
SERVO
D PG D FG
D PG.D FG
IC203 (1/2)
WAVE SHAPER
DRUM PG, DRUM FG
(See Page 172)
DD-54 BOARD (1/2)
M901 DRUM MOTOR
DRUM PG.FG
IC205 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC352
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
IC205 (1/2)
LPF
LPF
DRUM ERROR
DPUM PWM
M902 CAPSTAN MOTOR
CAPSTAN FG
IC204
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
CAP ERROR
CAP PWM
CFG(+),(−)
CAP FG
REF PILOT
ATF ERROR
IC
CHARACTER GENERATOR
IC905
CHIP SELECT
C.C.LOCK
VIDEO AUDIO SERVO
CONTROL SIG
VTR DD ON
CAM DD ON
CLOG, SP/LP DET
RF SWP
1/2 RF SWD
CAM 15V
CAM −8.5V
CAM 5V
D5V
EVF 5V
EVF 15V
D4V
AU 5V
VIDEO 5V
SS 5V
FVF UNREG
VTR UNREG
EVF OUT


FP-423 BOARD
(See Page 131)
M903 LOADING MOTOR
S901 MODE SWITCH
S991 C.C.LOCK
DEW SENSOR
D991 TAPE LED
TAPE TOP SENSOR
H992 T REEL FG SENSOR
Q991
Q992
H991 S REEL FG SENSOR
TAPE END SENSOR
S992
HI8 MP
ME/MP
REC PROOF
VTR SO
VTR SI
IC206 LOADING MOTOR DRIVE
LOAD UN LOAD
MSW A-C
C.C. LOCK
IC203 (1/2)
DEW (+)
DEW DETECT
DEW
TAPE TOP
TAPE TOP DETECT
T REEL (+),(–)
T REEL FG AMP
T REEL FG
S REEL (+),(–)
S REEL FG AMP
S REEL FG
TAPE END
TAPE END DETECT
TAPE LED(K)
HI8 MP SW
ME/MP SW
REC PROOF SW
IC201 MECHA CONTROL/SERVO
MECHA CONTROL
SERVO
VIDEO AUDIO SERVO
CONTROL SIG
CLOG, SP/LP DET
IC203 (1/2) WAVE SHAPER
D PG.D FG
DRUM PG. DRUM FG
(See Page 172)
DD-54 BOARD (1/2)
IC352
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
M MOTOR
IC205 (1/2) DRUM MOTOR DRIVE
DRUM VS
DRUM ERROR
IC205 (1/2)
LPF
DRUM PWM
CAP ERROR
CAP PWM
STAN MOTOR
IC204 CAPSTAN MOTOR DRIVE
WAVE SHAPER
CAP VS
CAP FG
REF PILOT
ATF ERROR
RF SWP
1/2 RF SWD
IC901 EEPROM
IC903
CHARACTER GENERATOR
IC905
CHIP SELECT
C.C. LOCK
MODE CONTROL (MASTER)
LCD PANNEL
DATE. TIME AUTO LOCK SW
FOCUS LOCK, ANOI 3. BRIGHT A,B
SIRCS 2
SIRCS 1
VTR MODE SW
CAM + STBY. START STOP SW
ANO 0, 1
EJECT
VTR DD ON
CAM DD ON
BACK UP VDD
IC902 BACK UP VDD SWITCH
L1 3V
LANC OUT
LANC IN
IC904 LANC I/O
CF-33 BOARD
(See Page 139)
MANU FOCUS 1
MANU FOCUS 2
RV101 MANUAL FOCUS
S115,109,108,104,105,106, 101,102,103,110,
CAMERA FUNCTION SWITCH
S114,112,113 POWER,STAND BY START/STOP
S111 EJECT SWITCH
(See Page 139)
FK-33 BOARD
ZOOM SW
RV201 ZOOM SW
S202-211,216 VTR FUNCTION SWITCH
L13V
LITHIUM BATTERY
(See Page 140)
RE-23 BOARD
IC251
SIRCS2
REMOTE CONTROL RECEIVER
(See Page 140)
RE-22 BOARD
IC201
SIRCS1
REMOTE CONTROL RECEIVER
DD-54 BOARD (1/2)
(See Page 172)
CAM 5V CONT
IC351
15V
-8.5V
CAM 15V
CAM -8.5V
CAM 5V
D5V
EVF 5V
EVF 15V
D4V
AU 5V
VIDEO 5V
SS 5V
CAMERA DC/DC CONVERTER
VTR DC/DC CONVERTER
CAM UNREG
VTR UNREG
MOTOR UNREG
VTR DD ON
FVF UNREG
VTR UNREG
(See Page 171)
FU-111 BOARD
MAIN BATTERY
EZ-3 BOARD (1/2)
(See Page 160)
ACV UNREG
LANC SIG
IC101
BATT GND
BATTERY CHARGE CONTROL
BATT/EXT
LANC SIG
EZ Y
EZ C
Y/C MIX
AUDIO OUT L.R
CN113 EASY CONECTOR
EVF OUT
ELECTRIC VIEW FINDER
VF-56 BOARD
(See Page 168)
T501
H OUT
DH1, DH2
DY
H
V
HV
H
DV1, DV2
VIDEO AMP
V901 CRT
G1
EVF OUT
VIDEO AMP SYNC SEP V OUT H DRIVE
IC901
VF-55 BOARD
(See Page 167)

3-3. CAMERA BLOCK DIAGRAM


(See Page 105)
ZOOM LENS UNIT
M904 IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
MR SENSOR
ZOOM SENSOR
LD-63 BOARD
(See Page 103)
IC754 (1/2) IRIS DRIVE
IC754 (1/2)
IC755 (1/4) HALL BIAS CONTROL
IC755 (1/4) HALL AMP
IC755 (1/4) HALL GAIN CONTROL
IC757 FOCUS DRIVE
IC753 (1/2) BUFFER
IC753 (1/2) MR SENSOR AMP
IC756 FOCUS CONT
IC755 (1/4)
IC751 AUTO FOCUS CONTROL
IC758 ZOOM MOTOR DRIVE
IC752 ZOOM MOTOR PRE DRIVE
LPF
IC721 ③, ④ CAMERA REC
IC721 ①, ② CAMERA REC
IC751 ㊵ CAMERA REC
IC751 ㉔ CAMERA REC
IC758 ④, ⑥, ⑮, ⑰
With the ZOOM button pressed.
IC758 ⑧, ⑨
CD-101 BOARD
(See Page 92)
IC721 CCD IMAGER
BUFFER
VSUB REG
23V RECT
Q724 Ⓔ CAMERA REC
IC721 ⑬ CAMERA REC
IC721 ⑯ CAMERA REC
IC721 ⑮ CAMERA REC
VC-129 BOARD (1/4)
(See Page 94)
IC601 ⑤, ⑦ CAMERA REC
IC602 53 CAMERA REC
IC603 ㉑, ㉒ CAMERA REC
IC601 ③, ④ CAMERA REC
IC602 47 CAMERA REC
IC601 ⑥, ⑧ CAMERA REC
IC601 V DRIVE
IC602 TIMING GENERATOR
IC654 D/A CONVERTER (EVR)
IC651 E²PROM
Q601 BUFFER
DRIVE OSCIRATION
SYSTEM CONTROL (VC-129)
FOR CHECK
IC653 ㊱
IC653 73 CAM


VC-129 BOARD (1/4)
(See Page 94)
IC601 V DRIVE
IC602 TIMING GENERATOR
IC603 (1/2) SIGNAL SEPARATION AGC/IRIS CONTROL
IC603 (1/2) A/D BIAS AMP
IC604 A/D CONVERTER
IC659 CAMERA CORE (DIGITAL CAMERA PROCESS)
IC660 SYNC GENERATOR
IC661
IC654 D/A CONVERTER (EVR)
IC653 CAMERA CONTROL
IC656 OPD
IC651 EEPROM
Q601 BUFFER
Q603 BUFFER
SAMPL HOLD
CLAMP
DRIVE
LPF
DE
1H DERAY
TRAP
DL
BPF
HORIZONTAL APERTURE COMPENSATOR
VERTICAL APERTURE COMPENSATOR
APCN LEVEL
CORING
VAPCN GAIN
INTER FACE
AFC HALF H KILLER SPEED DETECT PHASE COMP
VCO 4FSC (VTR) 5/4 (PAL CAM) OFF (NTS.CAM)
PHASE COMP
1/4 (VTR) 1/3 (PAL.CAM)
DRIVE OSCIRATION
X601 28.375MHz
X651 16MHz
IC601 ⑤,⑦ CAMERA REC
IC601 ③,④ CAMERA REC
IC601 ⑥,⑧ CAMERA REC
IC602 (53) CAMERA REC
IC603 (21),(22) CAMERA REC
IC602 (47) CAMERA REC
IC602 (37) CAMERA REC
IC602 (57) CAMERA REC
IC603 (32) CAMERA REC
IC604 (39),(40) CAMERA REC
IC603 ⑤,(24) CAMERA REC
IC604 ⑧-⑫ CAMERA REC
IC659 (82) CAMERA REC
IC659 (66) CAMERA REC
IC602 ① CAMERA REC
IC602 (59) CAMERA REC
IC602 (60) CAMERA REC
IC604 ①-⑤ CAMERA REC
IC659 (67) CAMERA REC
IC653 (36),(37) CAMERA REC
IC660 ⑭ CAMERA REC
IC653 ③,⑨ CAMERA REC
IC660 (63) CAMERA REC
IC653 (73) CAMERA REC
14.1875MHz
28.375MHz
14.318MHz
4.43MHz
16MHz
CN601
CN651
CN652
FOR CHECK
W721
CCD OUT
V SUB CONT
PG CONT
CAM SI
CAM SO
CAM SCK
HALL OFFSET
HALL GAIN
REF 2V
SYS RESET
760H 510H
760H: 760H CCD
510H: 510H CCD

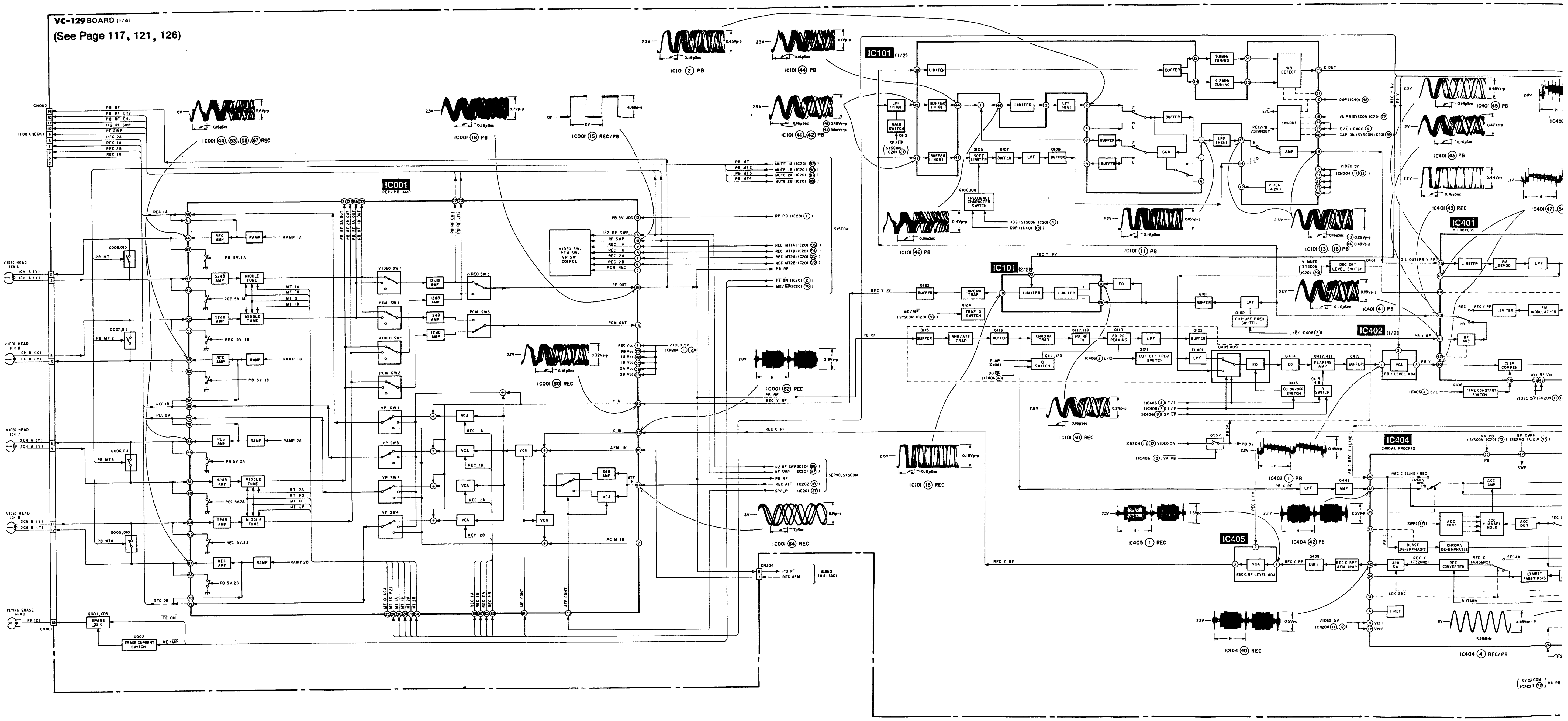

IC603 (1/2)
A/D BIAS AMP
CLAMP
DRIVE
BUFFER
Q603
IC604
A/D CONVERTER
IC659
CAMERA CORE (DIGITAL CAMERA PROCESS)
DE
1H DERAY
TRAP
DL
HORIZONTAL APERTURE COMPENSATOR
VERTICAL APERTURE COMPENSATOR
BPF
GAIN SELECT
LPF
CORING
DETALE
ROM
GAMMA ROM
EFECT
WHIUTE CLIP
SYNK BLK CHARACTER MIX
D/A CONV
R MATRIX B MATRIX
CHROMA GAMMA
SFC
BURST BLK ADD
ENCODER
PAL NTSC
VDC
INTER FACE
IC660
SYNC GENERATOR
AFC HALF H KILLER SPEED DETECT PHASE COMP
IC661
IC656
OPD
SYNC GENERATOR
1/3 COUNTER
MOSAIC HOLD TIMING
POLAITY
PROG DERAY
CONTROL DATA LATCH
CRTC MASC
PB TITLE CHROMA MODLIRATOR D/A CONVERTER
VCO
PHASE COMP
BUFFER
Q657
FL651
Q658
Q656
Q659
4.43MHz BPF
CN651
FOR CHECK
CAM Y
CAM C
VIDEO
SYSCON
POWER
CN204
IC603 ㉜ CAMERA REC
IC603 ⑤, ㉔ CAMERA REC
IC604 ㊴, ㊵ CAMERA REC
IC604 ⑧-⑫ CAMERA REC
IC604 ①-⑤ CAMERA REC
IC602 ㊿ CAMERA REC
IC659 ㊾ CAMERA REC
IC659 ㊷ CAMERA REC
IC659 ㉘ CAMERA REC
IC659 ㊻ CAMERA REC
IC659 ㊼ CAMERA REC
IC659 ㊺ CAMERA REC
IC659 (82) CAMERA REC
IC660 ⑭ CAMERA REC
IC660 (63) CAMERA REC
IC660 ㉟ CAMERA REC
IC653 ③, ⑨ CAMERA REC
14.318MHz
4.43MHz

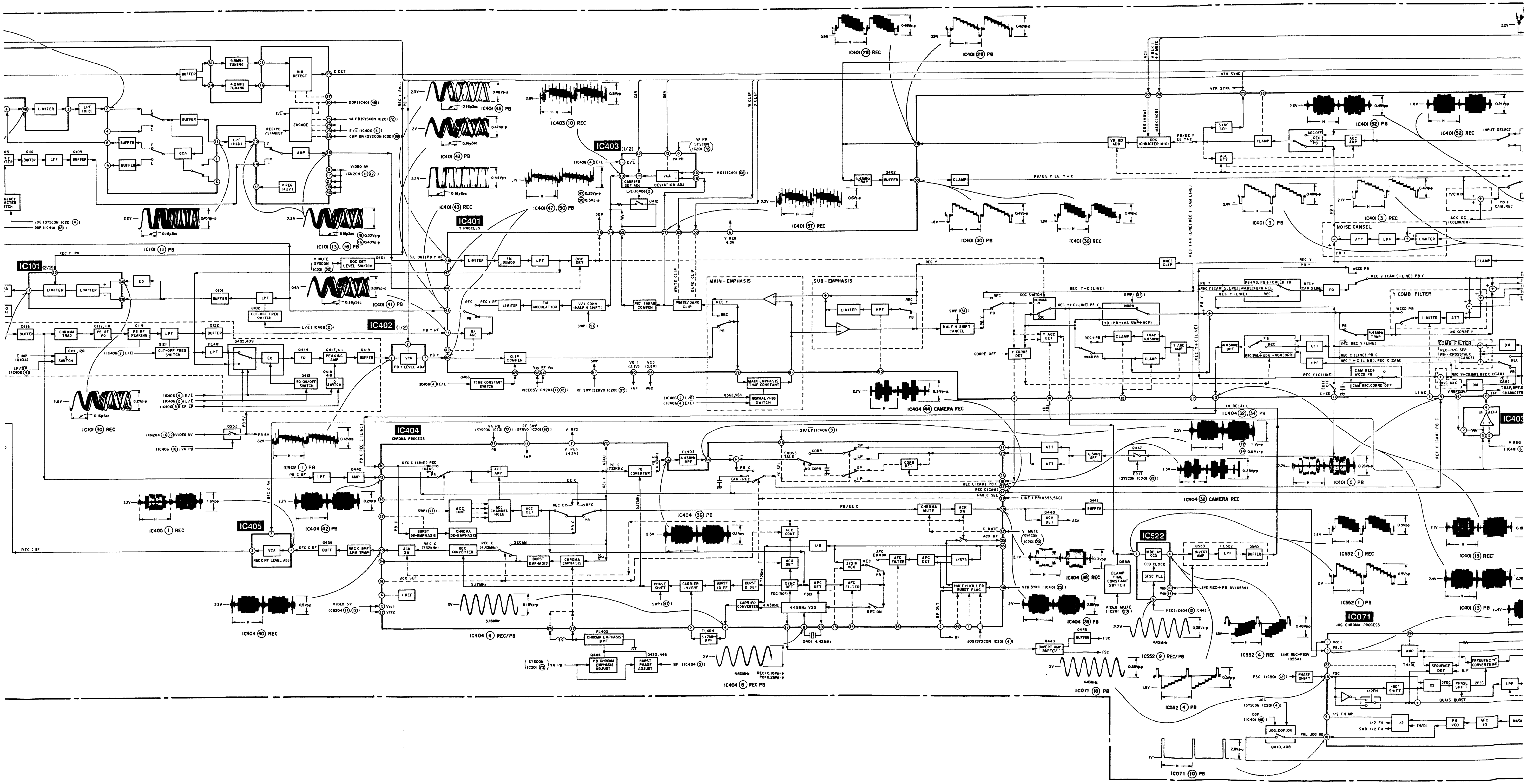
3-4. CAMERA MICRO PROCESSOR (VC-129 BOARD IC653: MC68HC11FU) PIN FUNCTIONS

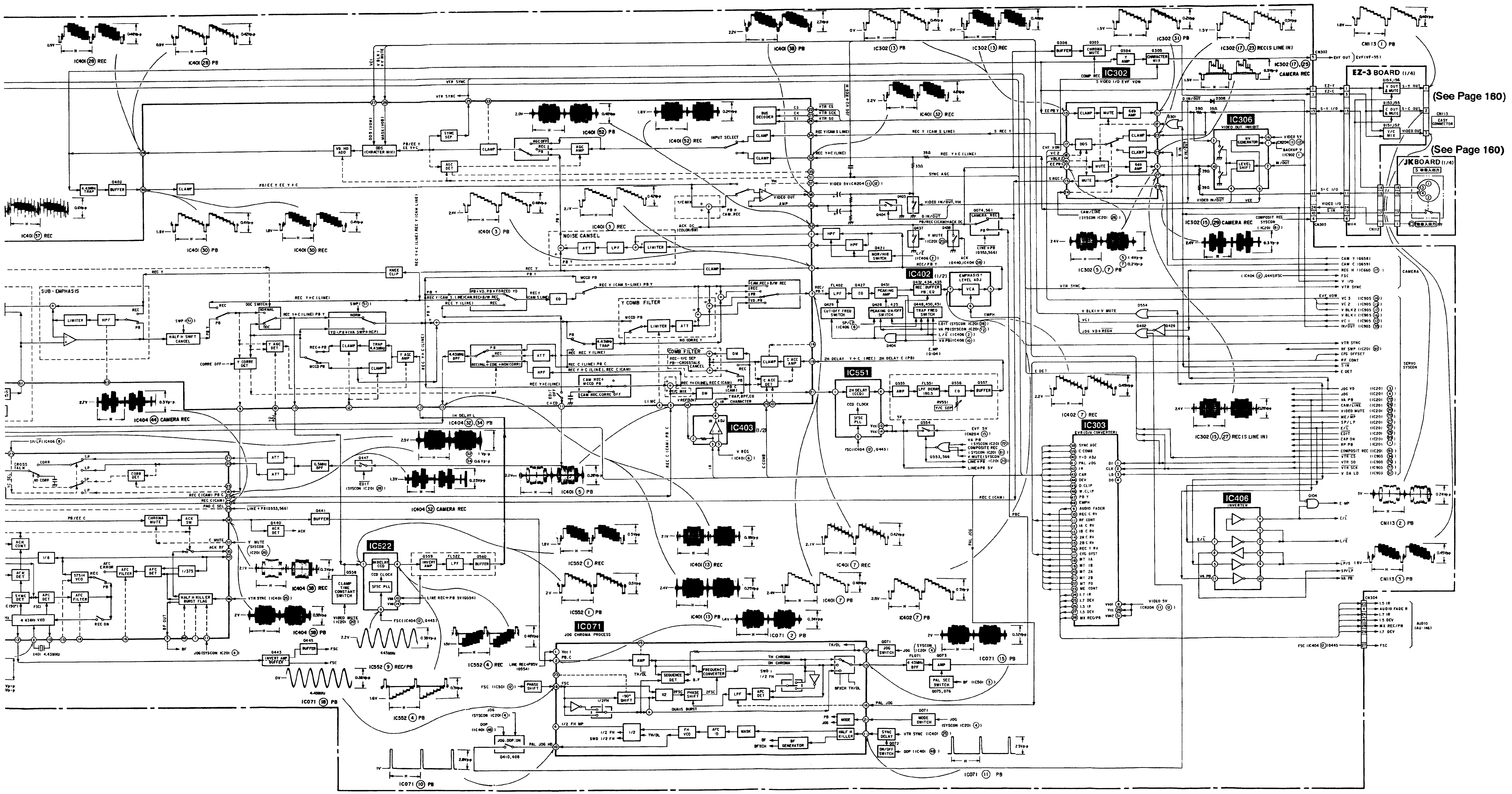
Pin No.	Signal Name	I/O	Function
1	VTR SI	I	Serial data input from mode control micro processor (VC-129 board IC903).
2	$\overline{\text{VTR SCK}}$	I	Serial data transfer clock for mode control micro processor.
3	$\overline{\text{CAM CS}}$	I	Chip select signal from mode control micro processor.
4			Not used.
5			
6			
7			
8			
9	VD	I	V SYNC from SYNC generator (VC-129 board IC660).
10	AJST	I	Adjusting timing pulse input from SYNC generator. Normally "H".
11			Not used.
12	VDD		+5V power supply.
13	VSS		GND
14			Not used.
15			
16			
17			
18			
19			
20			
21	EEPROM BUSY	I	BUSY signal from EEPROM (VC-129 board IC651). Normally "H". "L" pulse during data reading/writing.
22			Not used.
23	IRIS PWM	O	Iris control signal. 16 μsec. cycle PWM signal.
24			Not used.
25			
26			
27			
28			
29			
30	XIRQ		Connected to +5V.
31	VDD		+5V power supply.
32	VSS		GND
33			Not used.
34			
35			
36	$\overline{\text{CAM SCK}}$	O	Serial data transfer clock.
37	CAM SO	O	Serial data output.
38	CAM SI	I	Serial data input.
39			Not used.
40			
41	VDD		+5V power supply.
42			Not used. Connected to GND.
43			
44			
45			

Pin No.	Signal Name	I/O	Function
46			Not used. Connected to GND.
47			
48			
49	HALL A/D	I	Hall voltage. Approx. 1V (iris open) to approx. 3.6V (iris close).
50	VRL	I	A/D port reference voltage (LOW). Connected to GND.
51	VRH	I	A/D port reference voltage (HIGH). Connected to +5V.
52	VSS		GND
53	$\overline{\text{AF COSMO RST}}$	O	Reset signal to auto focus micro processor (LD-63 board IC751). Normally "H". "L" when reset.
54			Not used.
55			
56	EEPROM LOCK	O	EEPROM (VC-129 board IC651) writing prohibition signal. Normally "H".
57	$\overline{\text{OPD RESET}}$	O	Reset signal to OPD (VC-129 board IC656). "H" in camera mode, "L" in VTR mode.
58			Not used.
59	$\overline{\text{CAM ON}}$	O	A/D converter (VC-129 board IC604) on/off signal. Normally "L".
60	$\overline{\text{NTSC}}$	O	NTSC: "L", PAL: "H".
61	IRQ		Connected to +5V.
62	$\overline{\text{CS TG}}$	O	Chip select signal to timing generator (VC-129 board IC602).
63	$\overline{\text{CS CORE}}$	O	Chip select signal to camera core (VC-129 board IC659).
64	$\overline{\text{CS CAM OPD}}$	O	Chip select signal to OPD (VC-129 board IC656).
65	D/A STB	O	Strobe signal to camera section EVR (VC-129 board IC654).
66	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (VC-129 board IC651).
67	$\overline{\text{CS AF}}$	O	Chip select signal to auto focus micro processor (LD-63 board IC751).
68			Not used.
69	$\overline{\text{CORE RESET}}$		Reset signal to camera core (VC-129 board IC659). Normally "H". "L" when reset.
70	VSS		GND
71	VDD		+5V power supply.
72			Not used.
73	EXTAL	I	16 MHz clock oscillation circuit.
74	XTAL	O	
75	$\overline{\text{RESET}}$	I	Reset signal from mode control micro processor (VC-129 board IC903). Normally "H". "L" when reset.
76	MODB		Connected to +5V.
77	MODA		Connected to GND.
78	RXD		Not used.
79	TXD		Not used.
80	VTR SO	O	Serial data output to mode control micro processor (VC-129 board IC903).

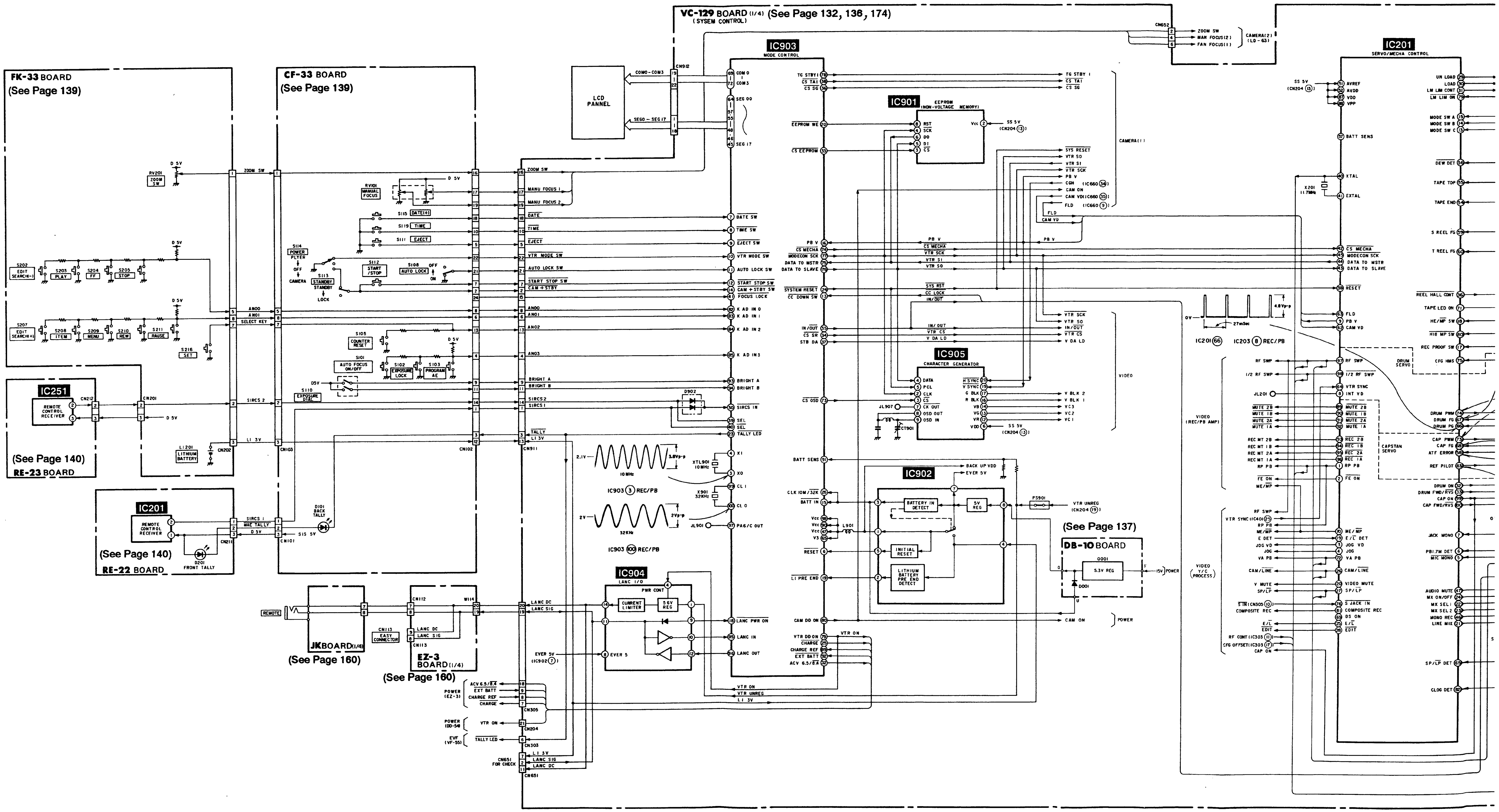
3-5. VIDEO BLOCK DIAGRAM

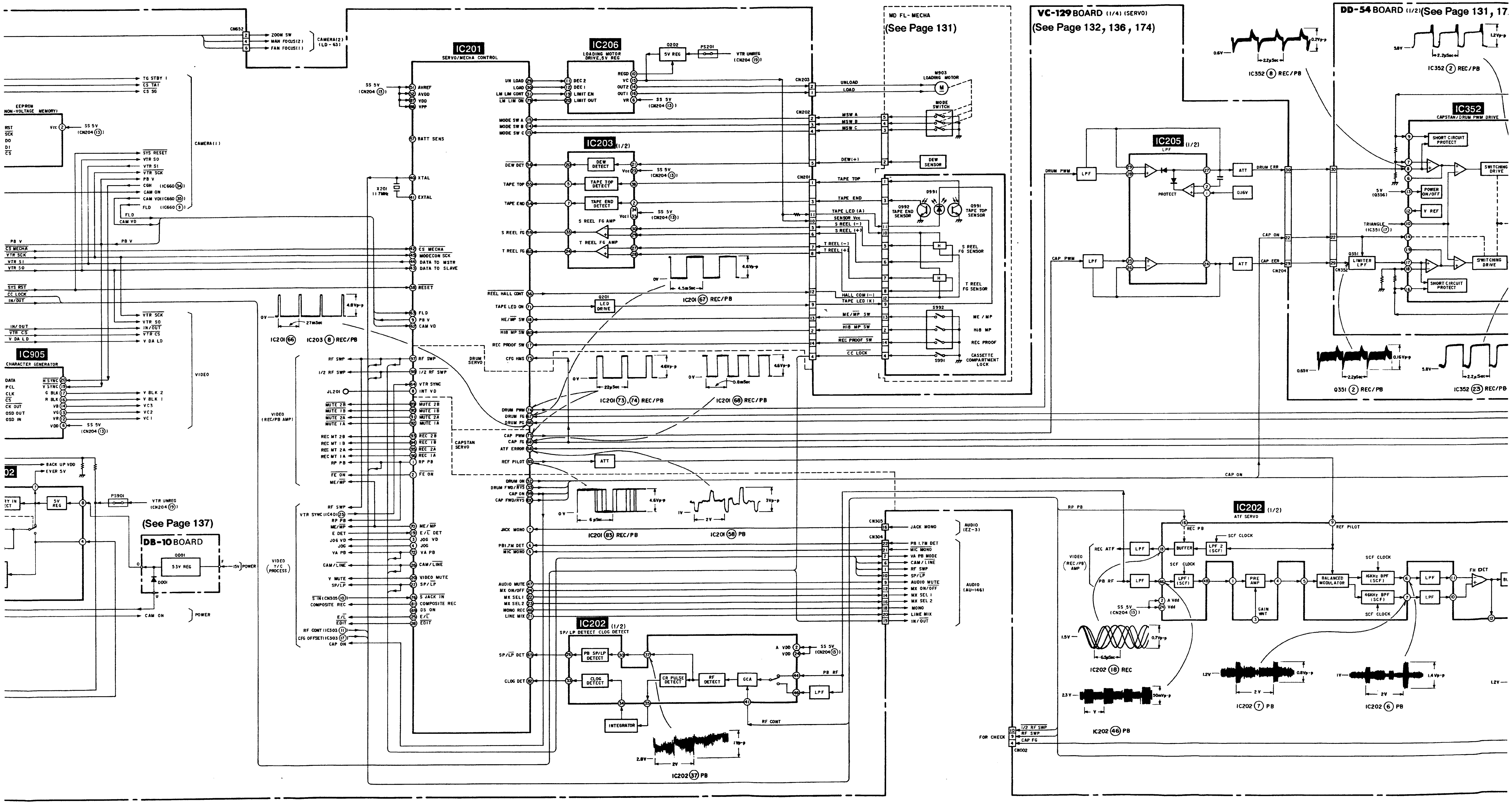

VC-129 BOARD (1/4)
(See Page 117, 121, 126)
IC001
REC/PB AMP
IC101 (1/2)
IC101 (2/2)
IC401
Y PROCESS
IC402 (1/2)
IC404
CHROMA PROCESS
IC405
CN002
CN001
CN304
VIDEO SW1
VIDEO SW2
VIDEO SW3
PCM SW1
PCM SW2
PCM SW3
VP SW1
VP SW2
VP SW3
VP SW4
VCA
REC AMP
RAMP
52dB AMP
MIDDLE TUNE
12dB AMP
ERASE OSC
ERASE CURRENT SWITCH
LIMITER
BUFFER
LPF
GCA
ENCODE
NB DETECT
CHROMA TRAP
SOFT LIMITER
FREQUENCY CHARACTER SWITCH
TRAP Q SWITCH
AFM/ATF TRAP
PB RF PEAKING
CUT-OFF FREQ SWITCH
EQ
PEAKING AMP
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACC DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
REC CONVERTER
BURST EMPHASIS
FM MODULATOR
FM DEMOD
CLIP COMPEN
TIME CONSTANT SWITCH
AUDIO (AU-146)
SERVO, SYSCON
SYSCON
IC101 ② PB
IC101 ㊹ PB
IC001 ㊹, ㊼, ㊽, ㊿ REC
IC001 ⑱ PB
IC001 ⑮ REC/PB
IC101 ㊶, ㊷ PB
IC101 ㊻ PB
IC101 ⑪ PB
IC101 ⑬, ⑯ PB
IC001 (80) REC
IC001 (82) REC
IC001 (84) REC
IC101 ㊿ REC
IC101 ⑱ REC
IC401 ㊺ PB
IC401 ㊸ PB
IC401 ㊸ REC
IC401 ㊶ PB
IC402 ① PB
IC405 ① REC
IC404 ㊷ PB
IC404 ㊵ REC
IC404 ④ REC/PB
VIDEO HEAD CH A
VIDEO HEAD CH B
VIDEO HEAD 2CH A
VIDEO HEAD 2CH B
FLYING ERASE HEAD
(FOR CHECK)

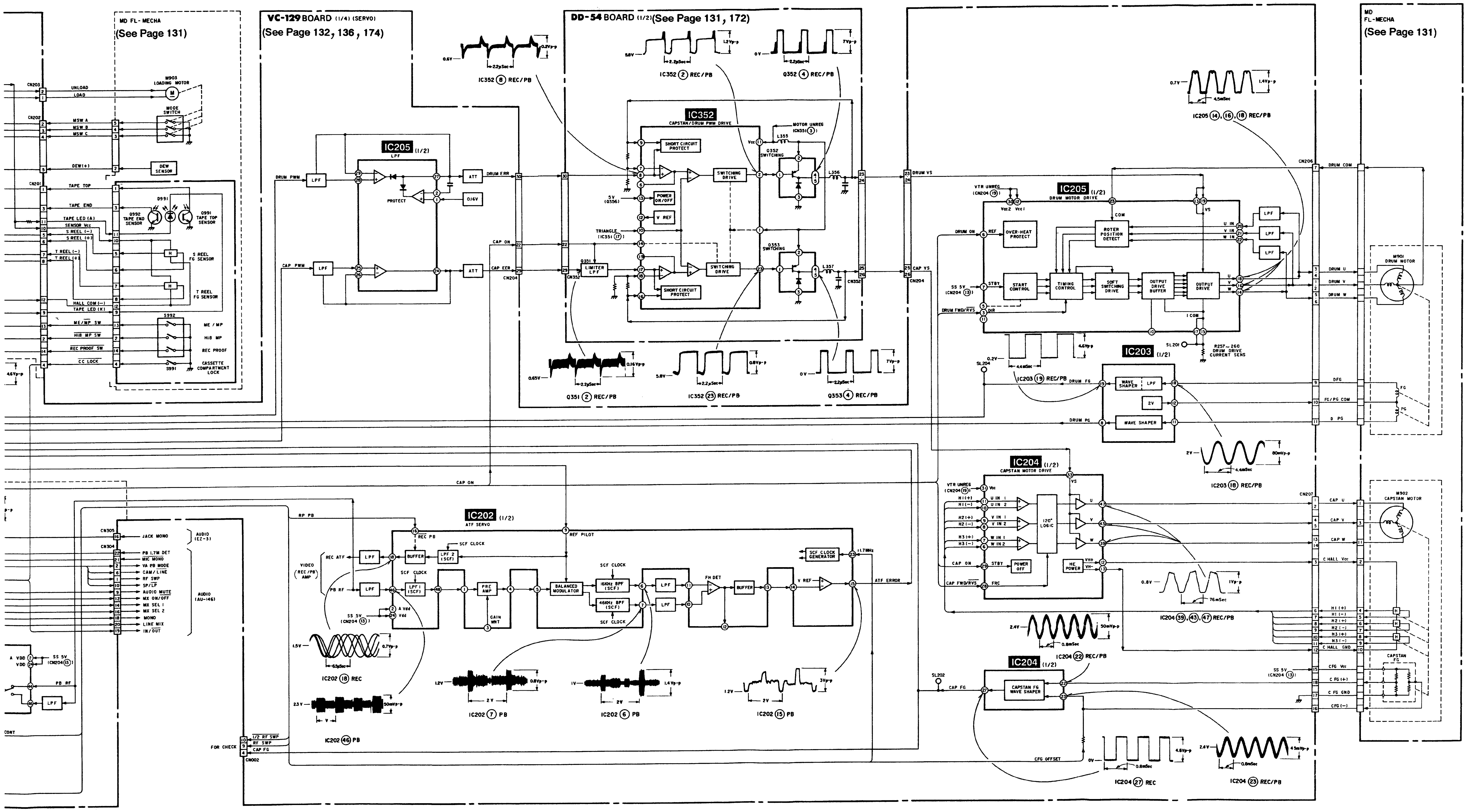

IC101 (2/2)
IC401 Y PROCESS
IC402 (1/2)
IC403 (1/2)
IC404 CHROMA PROCESS
IC405
IC522
IC071 JOG CHROMA PROCESS
MAIN-EMPHASIS
SUB-EMPHASIS
NOISE CANSEL
Y COMB FILTER
COMB FILTER
IC404 (44) CAMERA REC
IC404 (32) CAMERA REC
IC401 (57) REC
IC401 (3) PB
IC401 (5) PB
IC101 (11) PB
IC101 (30) REC
IC402 (1) PB
IC405 (1) REC
IC404 (42) PB
IC404 (40) REC
IC404 (4) REC/PB
IC404 (8) REC PB
IC404 (36) PB
IC552 (1) REC
IC552 (1) PB
IC552 (4) PB
IC552 (9) REC/PB
IC071 (18) PB
IC071 (10) PB


IC302
IC306
IC402 (1/2)
IC551
IC403 (1/2)
IC303
IC406
IC522
IC071
JOG CHROMA PROCESS
EZ-3 BOARD (1/4)
(See Page 160)
JK BOARD (1/4)
(See Page 160)
SUB-EMPHASIS
NOISE CANSEL
Y COMB FILTER
COMB FILTER
EVF(D/A CONVERTER)
INVERTER
VIDEO OUT AMP
CAMERA
SERVO SYSCON
AUDIO (AU-146)
IC401 (28) REC
IC401 (28) PB
IC401 (57) REC
IC401 (30) PB
IC401 (30) REC
IC401 (38) PB
IC401 (52) PB
IC401 (52) REC
IC401 (3) PB
IC401 (3) REC
IC401 (5) PB
IC401 (13) REC
IC401 (13) PB
IC401 (7) REC
IC401 (7) PB
IC302 (13) PB
IC302 (13) REC
IC302 (31) PB
IC302 (17),(23) REC(S LINE IN)
IC302 (17),(23) CAMERA REC
IC302 (32) REC
IC302 (15),(29) CAMERA REC
IC302 (5),(7) PB
IC302 (15),(27) REC(S LINE IN)
IC402 (7) REC
IC402 (7) PB
IC404 (44) CAMERA REC
IC404 (32),(34) PB
IC404 (32) CAMERA REC
IC404 (38) REC
IC404 (38) PB
IC552 (1) REC
IC552 (1) PB
IC552 (4) REC
IC552 (4) PB
IC552 (9) REC/PB
IC071 (2) PB
IC071 (15) PB
IC071 (18) PB
IC071 (10) PB
IC071 (11) PB
CN113 (1) PB
CN113 (2) PB
CN113 (3) PB

3-6. SERVO/SYSTEM CONTROL BLOCK DIAGRAM


FK-33 BOARD
(See Page 139)
CF-33 BOARD
(See Page 139)
VC-129 BOARD (1/4) (See Page 132, 136, 174)
(SYSEM CONTROL)
LCD PANNEL
IC903
MODE CONTROL
IC901
EEPROM (NON-VOLTAGE MEMORY)
IC905
CHARACTER GENERATOR
IC902
IC904
LANC I/O
IC201
SERVO/MECHA CONTROL
IC251
REMOTE CONTROL RECEIVER
(See Page 140)
RE-23 BOARD
IC201
REMOTE CONTROL RECEIVER
(See Page 140)
RE-22 BOARD
D201 FRONT TALLY
L1201 LITHIUM BATTERY
JK BOARD (1/4)
(See Page 160)
EZ-3 BOARD (1/4)
(See Page 160)
(See Page 137)
DB-10 BOARD
5.3V REG
BATTERY IN DETECT
5V REG
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
CURRENT LIMITER
5.6V REG
XTL901 10MHz
X901 32KHz
IC903 ③ REC/PB
IC903 ⑩ REC/PB
IC201 ⑯
IC203 ⑧ REC/PB
CAMERA(2) (LD-63)
ZOOM SW
MAN FOCUS(2)
FAN FOCUS(1)
CAPSTAN SERVO
DRUM SERVO
VIDEO
VIDEO (REC/PB AMP)
VIDEO (Y/C PROCESS)
POWER


IC201
SERVO/MECHA CONTROL
IC206
LOADING MOTOR DRIVE, 5V REG
IC203 (1/2)
IC205 (1/2)
LPF
IC352
CAPSTAN/DRUM PWM DRIVE
IC202 (1/2)
SP/LP DETECT CLOG DETECT
IC202 (1/2)
ATF SERVO
IC905
CHARACTER GENERATOR
MD FL-MECHA
(See Page 131)
VC-129 BOARD (1/4) (SERVO)
(See Page 132, 136, 174)
DD-54 BOARD (1/2) (See Page 131, 17
(See Page 137)
DB-10 BOARD
CAMERA (2) (LD-63)
CAMERA (1)
VIDEO
VIDEO (REC/PB AMP)
VIDEO (Y/C PROCESS)
POWER
DRUM SERVO
CAPSTAN SERVO
AUDIO (EZ-3)
AUDIO (AU-146)
M903 LOADING MOTOR
MODE SWITCH
DEW SENSOR
TAPE END SENSOR
TAPE TOP SENSOR
S REEL FG SENSOR
T REEL FG SENSOR
ME / MP
HI8 MP
REC PROOF
CASSETTE COMPARTMENT LOCK
DEW DETECT
TAPE TOP DETECT
TAPE END DETECT
S REEL FG AMP
T REEL FG AMP
LED DRIVE
ATT
PB SP/LP DETECT
CLOG DETECT
CR PULSE DETECT
RF DETECT
GCA
LPF
INTEGRATOR
RF CONT
BUFFER
LPF 2 (SCF)
LPF 1 (SCF)
PRE AMP
GAIN WNT
BALANCED MODULATOR
16KHz BPF (SCF)
46KHz BPF (SCF)
SCF CLOCK
SHORT CIRCUIT PROTECT
POWER ON/OFF
V REF
SWITCHING DRIVE
LIMITER LPF
PROTECT
5V REG
5.3V REG
FOR CHECK
IC201 ⑥⑦ REC/PB
IC201 ⑥⑥
IC203 ⑧ REC/PB
IC201 ⑦③, ⑦④ REC/PB
IC201 ⑥⑧ REC/PB
IC201 ⑧③ REC/PB
IC201 ⑤⑧ PB
IC202 ③⑦ PB
IC352 ⑧ REC/PB
IC352 ② REC/PB
Q351 ② REC/PB
IC352 ②③ REC/PB
IC202 ①⑧ REC
IC202 ④⑥ PB
IC202 ⑦ PB
IC202 ⑥ PB


MD FL-MECHA
(See Page 131)
VC-129 BOARD (1/4) (SERVO)
(See Page 132, 136, 174)
DD-54 BOARD (1/2)(See Page 131, 172)
MD FL-MECHA
(See Page 131)
IC205 (1/2)
IC352
CAPSTAN/DRUM PWM DRIVE
IC205 (1/2)
DRUM MOTOR DRIVE
IC203 (1/2)
IC204 (1/2)
CAPSTAN MOTOR DRIVE
IC202 (1/2)
ATF SERVO
IC204 (1/2)
M903 LOADING MOTOR
MODE SWITCH
DEW SENSOR
Q992 TAPE END SENSOR
D991
Q991 TAPE TOP SENSOR
S REEL FG SENSOR
T REEL FG SENSOR
S992
S991
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
IC352 ⑧ REC/PB
IC352 ② REC/PB
Q352 ④ REC/PB
Q351 ② REC/PB
IC352 ㉓ REC/PB
Q353 ④ REC/PB
IC205 ⑭, ⑯, ⑱ REC/PB
IC203 ⑲ REC/PB
IC203 ⑱ REC/PB
IC204 ㊴, ㊸, ㊼ REC/PB
IC204 ㉒ REC/PB
IC204 ㉗ REC
IC204 ㉓ REC/PB
IC202 ⑱ REC
IC202 ㊻ PB
IC202 ⑦ PB
IC202 ⑥ PB
IC202 ⑮ PB
DRUM PWM
CAP PWM
DRUM ERR
CAP ON
CAP ERR
DRUM VS
CAP VS
DRUM FG
DRUM PG
CAP FG
ATF ERROR
REF PILOT
SCF CLOCK
BALANCED MODULATOR
PRE AMP
BUFFER
LPF
ATT
CN352
CN204
CN206
CN207
CN305
CN304
CN002
FOR CHECK

3-7. AUTO FOCUS MICRO PROCESSOR (LD-63 BOARD IC751: CXP80624AR) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	PB3		Not used.
2	PB2		
3	PB1		
4	PB0		
5	RTO7/D7		
6	RTO6/D5		
7	RTO5/D5		
8	PC4/RT04		
9	PDR RESET	O	Zoom pre-driver (LD-63 board IC752) reset signal. Normally "H". "L" when reset.
10	ZOOM DRIVE	O	Not used.
11	PC1/PP017		
12	PC0/PP016		
13	PJ7/FSEL31		
14	PJ6/FSEL30		
15	PJ5/FSEL21		
16	PJ4/FSEL20		
17	PJ3/FSEL11		
18	PJ2/FSEL10		
19	PJ1/FSEL01		
20	PJ0/FSEL00		
21	PD7		
22	PD6		
23			
24			
25	WEN		Connected to +5V.
26			
27	FOC END SENSE	I	Not used. Connected to +5V.
28	ZOOM END SENSE	I	ZOOM END sensor input. Normally "H". Sensor input "L" pulse.
29	PH7		Not used.
30	PH6		
31	PH5		
32	PH4		
33	PH3		
34	PH2		
35	PH1		
36	PH0		
37	MP		Connected to GND.
38	$\overline{\text{AF RESET}}$	I	Reset signal from camera micro processor (VC-129 board IC653). Normally "H". "L" when reset.
39	VSS		GND
40	XTAL	O	12 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS AF}}$	I	Chip select signal from camera micro processor (VC-129 board IC653).
43	CAM SI	I	Serial data input from camera micro processor.
44	CAM SO	O	Serial data output to camera micro processor.
45	$\overline{\text{CAM SCK}}$	I	Serial data transfer clock from camera micro processor.

Pin No.	Signal Name	I/O	Function
46	PF7		Not used.
47	PF6		
48			
49			
50	AVSS		A/D port GND.
51	AVREF	I	A/D port reference voltage. Connected to +5V.
52	AVDD		A/D port +5V power supply.
53	FOCUS SENSE B	I	Focus sensor B input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
54	FOCUS SENSE A	I	Focus sensor A input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
55	MAN FOCUS(2)	I	Manual focus ring input (2). 0 Vdc to 4.8 Vdc voltage change according to ring position.
56	MAN FOCUS(1)	I	Manual focus ring input (1). 0 Vdc to 4.8 Vdc voltage change according to ring position.
57	ZOOM SW	I	Zoom switch input. Normally...Approx. 2.4 Vdc. When pressed to TELE side...Approx. 4.5 Vdc. When pressed to WIDE side...Approx. 0.3 Vdc.
58	FOCUS SENSE C	I	Focus sensor C input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
59			Connected to GND.
60			
61	PG7/EX11		Connected to +5V.
62	VD IN	I	V SYNC from SYNC generator (VC-129 board IC660).
63	PG5/SYNC1		Connected to +5V.
64	PG4		
65	PG3		
66	PG2		
67	PG1		
68	AF BUSY		
69	PE7/DAB1		Not used.
70	PE6/DAB0		
71	PE5/DAA1		
72	PE4/DAA0		
73	PE3/PWM1		
74	FOCUS PWM		Focus control signal. 21 μsec. cycle PWM signal.
75			Connected to +5V.
76			
77	AF SI	I	Serial data input from OPD (VC-129 board IC656) and zoom pre-driver (LD-63 board IC752).
78	AF SO	O	Serial data input to OPD and zoom pre-driver.
79	$\overline{\text{AF SCK}}$	O	Serial data transfer clock.
80			Not used.
81	PI/TO		
82	PI//PWM		
83	PI/PO		
84	PIO		Connected to +5V.
85	PKO		
86	GND		Connected to GND.
87	VDD		Connected to +5V.
88	VPP		
89	PA7/A15		Not used.
90	$\overline{\text{CS PDR}}$	O	Chip select signal to zoom pre-driver (LD-63 board IC752).

Pin No.	
91	P
92	P
93	$\overline{\text{C}}$
94	P
95	
96	$\overline{\text{Z}}$
97	
98	
99	
100	

eset.

Pin No.	Signal Name	I/O	Function
46	PF7		Not used.
47	PF6		
48			
49			
50	AVSS		A/D port GND.
51	AVREF	I	A/D port reference voltage. Connected to +5V.
52	AVDD		A/D port +5V power supply.
53	FOCUS SENSE B	I	Focus sensor B input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
54	FOCUS SENSE A	I	Focus sensor A input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
55	MAN FOCUS(2)	I	Manual focus ring input (2). 0 Vdc to 4.8 Vdc voltage change according to ring position.
56	MAN FOCUS(1)	I	Manual focus ring input (1). 0 Vdc to 4.8 Vdc voltage change according to ring position.
57	ZOOM SW	I	Zoom switch input. Normally…Approx. 2.4 Vdc. When pressed to TELE side…Approx. 4.5 Vdc. When pressed to WIDE side…Approx. 0.3 Vdc.
58	FOCUS SENSE C	I	Focus sensor C input. Approx. 1.5 Vdc to approx. 3.2 Vdc analog voltage.
59			Connected to GND.
60			
61	PG7/EX11		Connected to +5V.
62	VD IN	I	V SYNC from SYNC generator (VC-129 board IC660).
63	PG5/SYNC1		Connected to +5V.
64	PG4		
65	PG3		
66	PG2		
67	PG1		
68	AF BUSY		
69	PE7/DAB1		Not used.
70	PE6/DAB0		
71	PE5/DAA1		
72	PE4/DAA0		
73	PE3/PWM1		
74	FOCUS PWM		Focus control signal. 21 µsec. cycle PWM signal.
75			Connected to +5V.
76			
77	AF SI	I	Serial data input from OPD (VC-129 board IC656) and zoom pre-driver (LD-63 board IC752).
78	AF SO	O	Serial data input to OPD and zoom pre-driver.
79	$\overline{\text{AF SCK}}$	O	Serial data transfer clock.
80			Not used.
81	PI/TO		
82	PI//PWM		
83	PI/PO		
84	PIO		Connected to +5V.
85	PKO		
86	GND		Connected to GND.
87	VDD		Connected to +5V.
88	VPP		
89	PA7/A15		Not used.
90	$\overline{\text{CS PDR}}$	O	Chip select signal to zoom pre-driver (LD-63 board IC752).

Pin No.	Signal Name	I/O	Function
91	PA5		Not used.
92	PA4		
93	$\overline{\text{CS OPD}}$	O	Chip select signal to OPD (VC-129 board IC656).
94	PA2		Not used.
95			
96	$\overline{\text{ZOOM SENSE ON}}$	O	Zoom sensor on/off signal. Normally "H". "L" for approx. 1 second just after power is turned on.
97			Not used.
98			
99			
100			

3-8. MECHANISM CONTROL MICRO PROCESSOR (VC-129 BOARD IC201: CXP80624) PIN FUNCTIONS

Pin No.	Signal Name	I/O	Function
1	RP PB	O	REC/PB switching signal of REC/PB amplifier (VC-129 board IC001) and ATF servo IC (VC-129 board IC202). "H": PB.
2	$\overline{\text{FE ON}}$	O	Flying erase oscillation on/off control signal. "L": Oscillation.
3	JOG VD	O	False VD signal inserted in playback video signal during variable speed playback.
4	JOG	O	Variable speed playback/normal playback switching signal of video circuit. "H": Variable speed playback.
5	$\overline{\text{MIC MONO}}$	I	External microphone monaural/stereo discrimination input. "L": When monaural microphone is used.
6	PB 1.7M DET	I	AFM stereo tape/monaural tape discrimination input. "H": During stereo or bilingual tape playback.
7	JACK MONO	I	Monaural/stereo discrimination input of audio input/output terminal. "L": When jack is inserted in right channel terminal.
8	INT VD	O	Internal VD signal.
9	PBV	O	System synchronizing signal which becomes reference for character generator, communication, LANC synchronization. When CAM: Locks to CAM VD (Pin (62)). When VTR: Locks to VTR SYNC (Pin (64)).
10	NC		Not used (open).
11	NC		
12	NC		
13	MODE SW C	I	Mode switch input.
14	MODE SW B	I	
15	MODE SW A	I	

	EJECT	USE	LS	GL	REC/PB	READY
MODE SW A	L	H	L	L	H	H
MODE SW B	L	H	H	H	L	L
MODE SW C	H	L	H	L	H	L

Pin No.	Signal Name	I/O	Function
16	NC		Not used (open).
17	$\overline{\text{REC PROOF SW}}$	I	Recording-proof switch input. "H": REC prohibition.
18	ME/$\overline{\text{MP}}$ SW	I	ME/$\overline{\text{MP}}$ switch input. "L": MP, "H": ME.
19	E/$\overline{\text{L}}$ DET	I	Normal/Hi8 discrimination input. "H": When section recorded in Hi8 mode is played back.
20	VIDEO MUTE	O	Video output mute signal. "H" mute.
21	LINE MIX	O	"H" when menu display bilingual switch is at "Off" and no plug is inserted in right audio output terminal, during playback. (Monaural signal is output after L/R mixing). "H" also when no plug is inserted in right audio output terminal in camera mode (However, when external monaural microphone is not used.).
22	MX SEL 1	O	When recording: Monaural/stereo switching signal. When playing back: Monaural/stereo/bilingual switching signal.
23	MX SEL 2	O	

	Monaural	Stereo
MX SEL 1	L	L
MX SEL 2	H	L

	Stereo	Main	Sub	Monaural
MX SEL 1	L	L	H	L
MX SEL 2	L	H	L	H

Pin No.	Signal Name	I/O	Function
24	MX ON/OFF	O	Matrix on/off signal. "H": Matrix on (stereo recording/playback)
25	Hi8/$\overline{\text{NORM}}$ (E/$\overline{\text{L}}$)	O	Video circuit normal/Hi8 switching signal. "H": Hi8 mode.
26	CAM/$\overline{\text{LINE}}$	O	Camera input/line input switching signal. "H": Camera input.
27	SP/$\overline{\text{LP}}$	O	SP/LP switching signal. "L": LP.
28	$\overline{\text{EDIT}}$	O	Video circuit normal/EDIT switching signal. "L": When edit of menu display is at "ON".
29	UNLOAD	O	Loading motor control signal. When unloading: "H" or "H" pulse.
30	LOAD	O	Loading motor control signal. When loading: "H" or "H" pulse.
31	LM LIM CONT	O	Loading motor limiter control signal. Momentarily "H" when loading.
32	DRUM ON	O	Drum motor on/off signal. "H" (Approx. 1.3V): Drum on.
33	DRUM FWD/$\overline{\text{RVS}}$	O	Drum rotation direction control signal. Normally "H".
34	NC		Not used (open).
35	NC		
36	$\overline{\text{REEL HALL CONT}}$	O	Reel FG sensor (HALL element) power supply control signal. When active: "L".
37	MP		Connected to GND.
38	$\overline{\text{RESET}}$	I	Reset signal from mode control micro processor (VC-129 board IC903). When reset: "L".
39	VSS		GND

Pin No.	Signal Name	I/O	Function
40	XTAL	O	11.7 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS MECHA}}$	I	Chip select signal from mode control micro processor (VC-129 board IC903).
43	DATA TO SLAVE	I	Serial data input from mode control micro processor.
44	DATA TO MSTER	O	Serial data output to mode control micro processor.
45	$\overline{\text{MODECON SCK}}$	I	Serial clock input from mode control micro processor.
46	MONO REC	O	Monaural/stereo recording switching signal. "H": During monaural recording (1.7 MHz REC AFM carrier off).
47	AUDIO MUTE	O	Audio output mute signal. "H": Mute.
48	TLV CHC	I	Not used. Connected to GND.
49	L AUDIO OUT	O	Audio input/output switching signal. "H" when no signal in both DS off mode and playback mode.
50	AVSS		A/D converter system GND.
51	AVREF		A/D converter system reference voltage. Connected to SS5V.
52	AVDD		A/D converter system power supply. Connected to SS5V.
53	NC		Not used. Connected to GND.
54	TAPE END	I	Tape end detection signal. Normally: "L", "H" pulse at tape end.
55	TAPE TOP	I	Tape top detection signal. Normally: "L", "H" pulse at tape top.
56	$\overline{\text{DEW DET}}$	I	Condensation detection signal. "L" when condensation present.
57	BATT SENSE	I	Not used. Connected to GND.
58	ATF ERROR	I	ATF error, ATF lock error input.
59	S REEL FG	I	S reel FG signal input.
60	T REEL FG	I	T reel FG signal input.
61	NC		Not used. Connected to GND.
62	CAM VD	I	VD signal from camera circuit sync generator (VC-129 board IC660). V cycle pulse.
63	FLD	I	FIELD signal from camera circuit sync generator. 2V cycle pulse.
64	VTR SYNC	I	Composite sync signal separated from recording/playback Y signal.
65	SP/$\overline{\text{LP}}$ DET	I	Discriminates recording mode of playback tape during CUE/REVIEW/FF/REW. "L"=LP
66	DRUM PG	I	Drum PG signal input. For drum phase servo. 26.7 msec. cycle "H" pulse.
67	DRUM FG	I	Drum FG signal input. For drum speed servo. 4.4 msec. cycle pulse.
68	CAP FG	I	Capstan FG signal input. Approx. 1145.5 Hz during REC/PB for capstan speed servo (SP mode).
69	DS ON	O	Data screen on/off signal. Not used.
70	ME/$\overline{\text{MP}}$	O	Recording current switching signal. "H": ME tape.
71	TAPE LED ON	O	TAPE LED on/off signal. 200 msec. cycle "H" pulse during REC/PB.
72	VA PB	O	REC/PB switching signal of video/audio circuit. "H": PB.
73	CAP PWM	O	Capstan error signal output. 20.15 μsec. PWM signal.
74	DRUM PWM	O	Drum error signal output. 20.15 μsec. PWM signal.
75	CFG HMS	I	Capstan FG signal input. For tape counter.
76	$\overline{\text{S JACK IN}}$	I	"L" when plug is inserted in S VIDEO terminal.
77	LANC IN	I	Not used. Connected to SS +5V.
78	LANC OUT	O	Not used.
79	$\overline{\text{LM LIM ON}}$	I	Loading motor limiter on detection signal. Normally "H". "L" when limiter is on.
80	$\overline{\text{Hi8 MP SW}}$	I	Hi8 MP switch input. "L": Hi8 MP tape.
81	COMPOSIT REC	O	Video input/S video input switching signal. "H": Video input.
82	CLOG DET	I	Head clog detection signal. "L": Normal.
83	REF PILOT	O	Reference pilot signal for ATF servo. Output after synchronizing with drum rotation and switching 4 frequencies. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.
84	NC		Not used. Connected to GND.
85	NC		Not used. Connected to GND.

Pin No.	
86	VSS
87	VDD
88	VPP
89	$\overline{\text{MUTE}}$
90	$\overline{\text{MUTE}}$
91	$\overline{\text{MUTE}}$
92	$\overline{\text{MUTE}}$
93	$\overline{\text{REC 2}}$
94	$\overline{\text{REC 1}}$
95	$\overline{\text{REC 2}}$
96	$\overline{\text{REC 1}}$
97	$\overline{\text{RF SW}}$
98	$\overline{\text{1/2 RF}}$
99	CAP O
100	CAP F

:TIONS

:-129 board

ed playback.
is used.
yback.
ed in right

n, LANC
C (Pin ⑱).

PB	READY
	H
	L
	L

ut terminal.
rted in right
used.).
l switching

	Monaural
	L
	H

Pin No.	Signal Name	I/O	Function
40	XTAL	O	11.7 MHz clock oscillation circuit.
41	EXTAL	I	
42	$\overline{\text{CS}}$ MECHA	I	Chip select signal from mode control micro processor (VC-129 board IC903).
43	DATA TO SLAVE	I	Serial data input from mode control micro processor.
44	DATA TO MSTER	O	Serial data output to mode control micro processor.
45	$\overline{\text{MODECON}}$ SCK	I	Serial clock input from mode control micro processor.
46	MONO REC	O	Monaural/stereo recording switching signal. "H": During monaural recording (1.7 MHz REC AFM carrier off).
47	AUDIO MUTE	O	Audio output mute signal. "H": Mute.
48	TLV CHC	I	Not used. Connected to GND.
49	L AUDIO OUT	O	Audio input/output switching signal. "H" when no signal in both DS off mode and playback mode.
50	AVSS		A/D converter system GND.
51	AVREF		A/D converter system reference voltage. Connected to SS5V.
52	AVDD		A/D converter system power supply. Connected to SS5V.
53	NC		Not used. Connected to GND.
54	TAPE END	I	Tape end detection signal. Normally: "L", "H" pulse at tape end.
55	TAPE TOP	I	Tape top detection signal. Normally: "L", "H" pulse at tape top.
56	$\overline{\text{DEW DET}}$	I	Condensation detection signal. "L" when condensation present.
57	BATT SENSE	I	Not used. Connected to GND.
58	ATF ERROR	I	ATF error, ATF lock error input.
59	S REEL FG	I	S reel FG signal input.
60	T REEL FG	I	T reel FG signal input.
61	NC		Not used. Connected to GND.
62	CAM VD	I	VD signal from camera circuit sync generator (VC-129 board IC660). V cycle pulse.
63	FLD	I	FIELD signal from camera circuit sync generator. 2V cycle pulse.
64	VTR SYNC	I	Composite sync signal separated from recording/playback Y signal.
65	SP/$\overline{\text{LP}}$ DET	I	Discriminates recording mode of playback tape during CUE/REVIEW/FF/REW. "L"=LP
66	DRUM PG	I	Drum PG signal input. For drum phase servo. 26.7 msec. cycle "H" pulse.
67	DRUM FG	I	Drum FG signal input. For drum speed servo. 4.4 msec. cycle pulse.
68	CAP FG	I	Capstan FG signal input. Approx. 1145.5 Hz during REC/PB for capstan speed servo (SP mode).
69	DS ON	O	Data screen on/off signal. Not used.
70	ME/$\overline{\text{MP}}$	O	Recording current switching signal. "H": ME tape.
71	TAPE LED ON	O	TAPE LED on/off signal. 200 msec. cycle "H" pulse during REC/PB.
72	VA PB	O	REC/PB switching signal of video/audio circuit. "H": PB.
73	CAP PWM	O	Capstan error signal output. 20.15 µsec. PWM signal.
74	DRUM PWM	O	Drum error signal output. 20.15 µsec. PWM signal.
75	CFG HMS	I	Capstan FG signal input. For tape counter.
76	$\overline{\text{S JACK IN}}$	I	"L" when plug is inserted in S VIDEO terminal.
77	LANC IN	I	Not used. Connected to SS +5V.
78	LANC OUT	O	Not used.
79	$\overline{\text{LM LIM ON}}$	I	Loading motor limiter on detection signal. Normally "H". "L" when limiter is on.
80	$\overline{\text{Hi8 MP SW}}$	I	Hi8 MP switch input. "L": Hi8 MP tape.
81	COMPOSIT REC	O	Video input/S video input switching signal. "H": Video input.
82	CLOG DET	I	Head clog detection signal. "L": Normal.
83	REF PILOT	O	Reference pilot signal for ATF servo. Output after synchronizing with drum rotation and switching 4 frequencies. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.
84	NC		Not used. Connected to GND.
85	NC		Not used. Connected to GND.

Pin No.	Signal Name	I/O	Function
86	VSS		GND.
87	VDD		Connected to SS5V.
88	VPP		
89	$\overline{\text{MUTE 2B}}$	O	Head mute signal. Control signal for preventing cross-talk from other 3 heads during recording/playback. When PB/REC: 4V cycle pulse (Only head playing back/recording "L"). In other modes: "L".
90	$\overline{\text{MUTE 1B}}$	O	
91	$\overline{\text{MUTE 2A}}$	O	
92	$\overline{\text{MUTE 1A}}$	O	
93	$\overline{\text{REC 2B}}$	O	Recording heads (1A, 1B, 2A, 2B) switching control signal. When REC: 4V cycle pulse (Only head recording "L"). In other modes: "H".
94	$\overline{\text{REC 1B}}$	O	
95	$\overline{\text{REC 2A}}$	O	
96	$\overline{\text{REC 1A}}$	O	
97	$\overline{\text{RF SWP}}$	O	RF switching pulse signal. 25 Hz, 50% duty pulse.
98	$\overline{\text{1/2 RF SWP}}$	O	1/2 RF switching pulse signal. 12.5 Hz, 50% duty pulse.
99	CAP ON	O	Capstan driver on/off control signal. "H": Capstan on.
100	CAP FWD/$\overline{\text{RVS}}$	O	Capstan rotation direction control signal. "H": FWD, "L": RVS.

3-9. MODE CONTROL MICRO PROCESSOR (VC-129 BOARD IC903: MB89092PFV-G-112A) PIN FUNCTIONS

Pin No.	Port Name	Signal Name	I/O	Function
1	MOD0	TEST MODE 0	I	Connected to GND.
2	MOD1	TEST MODE 1	I	Connected to GND.
3	X0	X0	I	10 MHz clock oscillation circuit.
4	X1	X1	O	
5	VSS	VSS		GND
6	XRST	$\overline{\text{RESET}}$	I	Reset input.
7	P00/EI20	$\overline{\text{DATA SW}}$	I	Date (+) key (CF-33 board S115) input. Normally "H". "L" when key is pressed.
8	P01/EI21	$\overline{\text{TIME SW}}$	I	Time key (CF-33 board S119) input. Normally "H". "L" when key is pressed.
9	P02/EI22	$\overline{\text{EJECT SW}}$	I	Cassette eject switch (CF-33 board S111) input. Normally "H". "L" when switch is pressed.
10	P03/EI23	$\overline{\text{VTR MODE SW}}$	I	Power supply switch (CF-33 board S114) input. "L" when power supply switch is at "Video".
11	P04/EI24	AUTO LOCK SW	I	Auto lock switch (CF-33 board S108) input. "H" during auto lock.
12	P05/EI25	$\overline{\text{START/STOP SW}}$	I	Start/stop key (CF-33 board S112) input. "L" when key is pressed (However, when power supply switch is at "Camera" and stand-by switch at "Standby".)
13	P06/EI26	$\overline{\text{CC DOWN SW}}$	I	CCDOWN switch (mechanism section) input. "L" when cassette compartment is locked.
14	P07/EI27	$\overline{\text{CAM+STBY SW}}$	I	Power supply switch (CF-33 board S114), stand-by switch (CF-33 board S113) input. "L" when power supply switch is at "Camera" and stand-by switch at "Standby".
15	P10/EI10	BATT IN	I	Main battery detection input. "H" when main battery is loaded or external power supply is connected.
16	P11/EI11	PB V	I	System sync signal from mechanism control micro processor (VC-129 board IC201). Timing reference signal of communication, LANC, etc.
17	P12/EI12			Not used.
18	P13/EI13	$\overline{\text{LANC POWER ON}}$	I	Power on signal input from wired remote commander. "L" when power switch of remote commander is pressed.
19	P14	$\overline{\text{LI PRE END}}$	I	Lithium battery end detection input. "L" when lithium battery has worn out or has not been loaded.
20	P15	$\overline{\text{EEPROM WE}}$	O	EEPROM (VC-129 board IC901) writing enable signal. "L" when writing data.
21	P16			Not used.
22	P17			
23	P20	$\overline{\text{TALLY LED}}$	O	Tally LED on/off signal. "L" during camera recording.
24	P21	$\overline{\text{SYSTEM RESET}}$	O	Reset signal of all systems. Normally "H". "L" when reset.
25	P22	$\overline{\text{CHARGE}}$	O	Charge control signal. Normally "H". "L" when charged.
26	COMD	CLK 10M/$\overline{\text{32k}}$	I	Mode control micro processor clock frequency switching signal. "H" (10 MHz) when main battery is loaded or external power supply is connected, "L" (32 kHz) when backed up by lithium battery.
27	P24/SI0			Not used.
28	P25/SO0			
29	P26/SCK0			
30	P27/RMC1	$\overline{\text{SIRCS IN}}$	I	Infrared remote commander signal input.
31	P30/SEG31			Not used.
32	P31/SEG30	AC 6.5/$\overline{\text{8.4}}$	O	AC power supply voltage switching. "H" when 6.5V. "L" when 8.4V.
33	P32/SEG29	$\overline{\text{CS EEPROM}}$	O	Chip select signal to EEPROM (VC-129 board IC901).
34	P33/SEG28	$\overline{\text{CS SR}}$	O	Chip select signal to video circuit Y signal process IC (VC-129 board IC401).

Pin No.	Port Name	Signal Name	I/O	Function
35	P34/SEG27	IN/$\overline{\text{OUT}}$	O	Video and audio input/output switching signal. "H" during input. "L" during output.
36	P35/SEG26	$\overline{\text{CS SG}}$	O	Chip select signal to SYNC generator (VC-129 board IC660).
37	P36/SEG25	STB DA	O	Strobe signal to video circuit EVR (VC-129 board IC303).
38	P37/SEG24	$\overline{\text{CS TAI}}$	O	Chip select signal to camera micro processor (VC-129 board IC653).
39	P40/SEG23	SEL	O	Infrared remote commander selection signal. "L" when muting SIRCS 2 signal from back sensor section (RE-23 board IC251).
40	P41/SEG22	$\overline{\text{SEL}}$	O	Infrared remote commander selection signal. "L" when muting SIRCS 1 signal from front sensor section (RE-23 board IC201).
41	P42/SEG21	$\overline{\text{FOCUS LOCK}}$	O	Not used.
42	P43/SEG20			
43	P44/SEG19			
44	P45/SEG18			
45	P46/SEG17	SEG17	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.6V, 3.2V and 4.8V).
46	P47/SEG16	SEG16	O	
47	VCC	VCC		+5V power supply (+3V power supply during backup).
48	SEG15	SEG15	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.6V, 3.2V, and 4.8V).
49	SEG14	SEG14	O	
50	SEG13	SEG13	O	
51	SEG12	SEG12	O	
52	SEG11	SEG11	O	
53	SEG10	SEG10	O	
54	SEG09	SEG09	O	
55	SEG08	SEG08	O	
56	VSS			GND
57	SEG07	SEG07	O	LCD segment terminal drive signal. Pulse of 4 values (0V, 1.6V, 3,2V, and 4.8V).
58	SEG06	SEG06	O	
59	SEG05	SEG05	O	
60	SEG04	SEG04	O	
61	SEG03	SEG03	O	
62	SEG02	SEG02	O	
63	SEG01	SEG01	O	
64	SEG00	SEG00	O	
65	V3	V3	I	4.8V LCD drive bias voltage
66	V2	V2	I	3.2V
67	V1	V1	I	1.6V
68	V0	V0	I	0V
69	COM0	COM0	O	LCD COM terminal drive signal. Pulse of 4 values (0V, 1.6V, 3.2V, 4.8V).
70	COM1	COM1	O	
71	COM2	COM2	O	
72	COM3	COM3	O	
73	P80/STB	$\overline{\text{CS OSD}}$	O	Chip select signal to character generator (VC-129 board IC905).
74	P81/XCS	$\overline{\text{CS MECHA}}$	O	Chip select signal to mechanism control micro processor (VC-129 board IC201).
75	P82/SI1	DATA TO MASTER	I	Serial data input signal.
76	P83/SO1	DATA TO SLAVE	O	Serial data output signal.
77	P84/SCK1	$\overline{\text{MODECON SCK}}$	O	Serial data transfer clock.
78	P85/ECK	TG STBY 1	O	Controls 4FSC of timing generator (VC-129 board IC602). "H" when no signal in VTR mode, "L" at other times.

Pin No.	P
79	P8
80	P8
81	AV
82	P9
83	P91
84	P9
85	P9
86	P9
87	P9
88	P9
89	P9
90	AV
91	PA
92	PA
93	PA
94	PA
95	PA
96	PA
97	PA
98	VC
99	CL
100	CL

luring output.

2 signal from

1 signal from

and 4.8V).

, and 4.8V).

, and 4.8V).

l.8V).

ard IC201).

Pin No.	Port Name	Signal Name	I/O	Function
79	P86/TO1	VTR DD ON	O	VTR DC-DC converter control signal. "H" when power switch is at "Player" or "Camera".
80	P87/TO2	CAM DD ON	O	CAMERA DC-DC converter control signal.
81	AVSS	AVSS		A/D port GND.
82	P90/AN00	K AD IN 0	I	Key input. A/D port. No input ···················· 5V (4.9V) Edit search (–) key (FK-33 board S202) ········· 4V (3.6V to 4V) Playback key (FK-33 board S203) ············ 3V (2.6V to 3.2V) Fast forward key (FK-33 board S204) ·········· 2V (1.6V to 2.2V) Stop key (FK-33 board S205) ················ 1V (0.4V to 1.3V) Record key (Not used) ··················· 0V (0V to 0.2V)
83	P91/AN01	K AD IN 1	I	Key input. A/D port. No input ···················· 5V Edit search (+) key (FK-33 board S207) ········· 4V Item key (FK-33 board S208) ················ 3V Menu key (FK-33 board S209) ··············· 2V Rewind key (FK-33 board S210) ·············· 1V Pause key (FK-33 board S211) ··············· 0V
84	P92/AN02	K AD IN 2	I	Key input. A/D port. No input ···················· 5V Counter reset key (CF-33 board S105) ·········· 2V Setting key (FK-33 board S216) ·············· 0V
85	P93/AN03	K AD IN 3	I	Key input. A/D port. No input ···················· 5V Focus key (CF-33 board S101) ··············· 3V Brightness lock key (CF-33 board S102) ········· 2V Program AE key (CF-33 board S103) ············ 0V
86	P94/AN04			Not used.
87	P95/AN05			
88	P96/AN06			
89	P97/AN07	CHARGE REF	I	CHARGE REF voltage input.
90	AVCC	AVCC		A/D port power supply (+5V).
91	PA0/AN08	BATT SENS	I	For battery end detection, main battery voltage input. (Voltage divided into 1/2 by R972, R973).
92	PA1/AN09	BATT/$\overline{\text{EXT}}$	I	Battery/external power supply switching signal input. "L" when external power supply is used.
93	PA2/AN10	BRIGHA B	I	Brightness adjusting dial input. Pulse input by dial rotation.
94	PA2/AN11	BRIGHT B	I	Brightness adjusting dial input. Pulse input by dial rotation.
95	PA4/LSI	LANC IN	I	LANC serial data input.
96	PA5/LSO	LANC OUT	O	LANC serial data output.
97	PA6/COUT		O	Terminal for checking.
98	VCC	VCC		+5V power supply (+3V power supply during backup).
99	CL1	CL1	O	32 kHz clock oscillation circuit (for clock).
100	CL0	CL0	I	

3-10. INTERFACE

3-10-1. System Control-Video and Audio Block Interface (VC-129 Board)

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB-PAUSE	FRAME	SLOW	SHUTTLE EDIT*14		REC*16	REC*16 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
SP/$\overline{\text{LP}}$	O	IC201 ㉗	*1	H	H	*2	*2	*2	*2	*2	*1	*1	*1	*2	*2	*17	H/L	H/L	*17	*2	*2	H	H
VA PB	O	IC201 (72)	L	L	L	H	H	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
AUDIO MUTE *13	O	IC201 ㊼	H	H	H	H	H	L	H	H	H	H	H	H	H	L	L	L	L	H	H	L	H
VIDEO MUTE	O	IC201 ⑳	H	H	H	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*3	*3	L	L	*4	*4	*4	*4
CAM/$\overline{\text{LINE}}$	O	IC201 ㉖	H	H	H	H	H	H	H	H	H	H	H	H	H	L	L	H	H	H	H	H	H
JOG VD	O	IC201 ③	L	L	L	*5	*5	L	*5	*5	*5	*5	*5	L	*5	L	L	L	L	L	*5	L	*5
RP PB	O	IC201 ①	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{FE ON}}$	O	IC201 ②	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
$\overline{\text{1/2 RF SWP}}$	O	IC201 (98)	H	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RF SWP	O	IC201 (97)	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
$\overline{\text{MUTE 2B}}$	O	IC201 (89)	L	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8
$\overline{\text{MUTE 1B}}$	O	IC201 (90)																					
$\overline{\text{MUTE 2A}}$	O	IC201 (91)																					
$\overline{\text{MUTE 1A}}$	O	IC201 (92)																					
JOG	O	IC201 ④	L	L	L	H	H	L	H	H	H	H	H	L	H	L	L	L	L	L	H	L	H
L AUDIO OUT	O	IC201 ㊾	L	L	L	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	L	L	L	L	*15	*15	*15	*15

Signal Na
$\overline{\text{REC2B}}$
$\overline{\text{REC1B}}$
$\overline{\text{REC2A}}$
$\overline{\text{REC1A}}$
SP/$\overline{\text{LP}}$ DET
CLOG
VTR SYNC

*1. Outpu

*2. Outpu
SP mc

*3. "L" w

*4. "H" w

*5. False

*6. 12.5 H

*7. 25 Hz

*8. Refer

*9. Refer

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB· PAUSE	FRAME	SLOW	SHUTTLE EDIT *14		REC *16	REC *16 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
$\overline{\text{REC2B}}$	O	IC201 (93)	H	H	H	H	H	H	H	H	H	H	H	H	H	*9	H	H	*9	H	H	H	H
$\overline{\text{REC1B}}$	O	IC201 (94)																					
$\overline{\text{REC2A}}$	O	IC201 (95)																					
$\overline{\text{REC1A}}$	O	IC201 (96)																					
SP/$\overline{\text{LP}}$ DET	I	IC201 (65)	L	*10	*10	*10	*10	L	*10	*10	*10			L	*10	H	H	H	H	L	*10	L	*10
CLOG	I	IC201 (82)	H	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	H	*11	*11	H	*11	*11	*11	*11
VTR SYNC	I	IC201 (64)	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12

*1. Outputs the discrimination results of the mode just before. SP mode: "H", LP mode: "L".

*2. Outputs the discrimination results of the recording mode of the tape played back.
SP mode: "H", LP mode: "L".

*3. "L" when the external input (video) is present. "H" when at other times.

*4. "H" when there are no signals on the tape. "L" at other times.

*5. False VD signal.

*6. 12.5 Hz duty 50% pulse (synchronizes with the rotation of the drum).

*7. 25 Hz duty 50% pulse (synchronizes with the rotation of the drum).

*8. Refer to Time Chart 1.

*9. Refer to Time Chart 2.

*10. "H" at SP recorded section of the tape, "L" at LP recorded section.

*11. "H" at unrecorded section or drop-out section. Head clog detection input.

*12. Composite sync signal input separated from the line input video signal, camera video signal or playback video signal. (Polarity +)

*13. "H" during load/unload of CAMERA mode.

*14. Condition where edit search is pressed during the pause of a playback.

*15. "H" when playing back with no signals and with the data screen off.

*16. Mode for adjustment.

*17. Set by REC MODE switch of menu screen. "H": SP mode, "L": LP mode.

3-10-2. System Control-Servo Block Interface (VC-129 Board)

Signal Name	I/O	Pin No.	VTR Mode															CAMERA Mode					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB-PAUSE	FRAME	SLOW	SHUTTLE EDIT *13		REC *14	REC *14 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW				FWD	REV					FWD	RVS	FWD	RVS
T.REEL FG	I	IC201 (60)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
S.REEL FG	I	IC201 (59)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
ATF ERROR	I	IC201 (58)	–	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
DRUM PG	I	IC201 (66)	–	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
DRUM FG	I	IC201 (67)	–	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP FG/ CFG HMS	I	IC201 (68), (75)	–	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
CAP ON	O	IC201 (99)	L	H	H	H	H	H	H	H	L	*8	*8	H	H	H	L	L	H	H	H	H	H
REF PILOT	O	IC201 (83)	*7	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RP PB	O	IC201 ①	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
DRUM FWD/$\overline{\text{RVS}}$ *10	O	IC201 ㉝	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD/ $\overline{\text{RVS}}$	O	IC201 (100)	L	H	L	H	L	H	H	L	L	*8	*8	H	L	H	L	L	H	H	L	H	L
DRUM PWM	O	IC201 (74)	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
CAP PWM	O	IC201 (73)	L	*9	*9	*9	*9	*9	*9	*9	L	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
LM LIM CONT *11	O	IC201 ㉛	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
DRUM ON *12	O	IC201 ㉜	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

*1. A pulse whose amplitude has been modulated by the rotation of the reel (5.5 msec. cycle) is input. (The amplitude modulation cycle is approx. 1 sec. during REC/PB.)

*2. ATF error voltage input.

*3. One PG pulse is input with one drum rotation. Approx. 37.5 Hz.

*4. Six FG pulses are input with one drum rotation. Approx. 225 Hz.

*5. 360 FG pulses are input with one capstan rotation. Approx. 1145.5 Hz during REC/PB (SP).

*6. Outputs four frequencies synchronized with the rotation of the drum. f_1=101.0 kHz, f_2=117.2 kHz, f_3=162.8 kHz, f_4=146.5 kHz.

*7. Outputs f_2 (117.2 kHz).

*8. "H" pulse when the tape is run.

*9. 21.5 μsec. cycle PWM signal.

*10. Normally "H". Temporarily "L" only during load/unload (drum reversal).

*11. Temporarily "H" only during cassette loading (To prevent your finger from being caught).

*12. H level is approx. 1.3 Vdc.

*13. Condition where edit search is pressed during the pause of a playback.

*14. Mode for adjustment.

Timing Chart 1

REC/PB MOD

REC/PB MOD

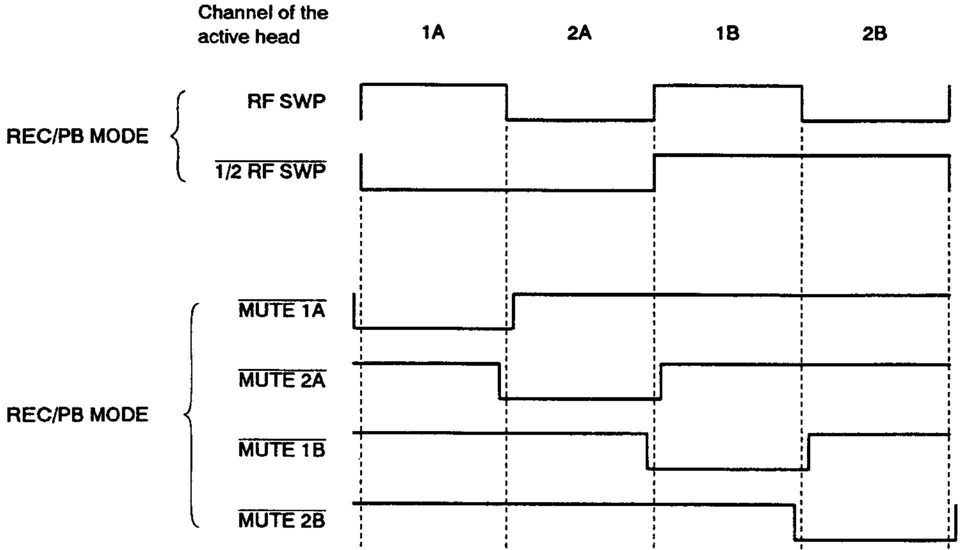
Timing Chart 2

REC MODE

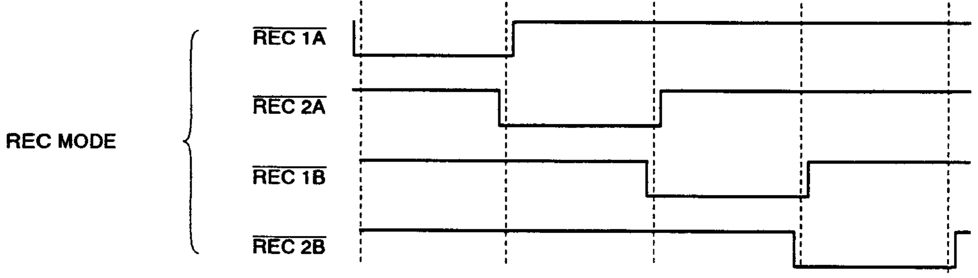
R Mode								CAMERA Mode					
EARCH	PB· PAUSE	FRAME	SLOW	SHUTTLE EDIT *13		REC *14	REC *14 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
EVIEW				FWD	REV					FWD	RVS	FWD	RVS
*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
H	L	*8	*8	H	H	H	L	L	H	H	H	H	H
*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
H	H	H	H	H	H	L	H	H	L	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	*8	*8	H	L	H	L	L	H	H	L	H	L
*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
*9	L	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
L	L	L	L	L	L	L	L	L	L	L	L	L	L
H	H	H	H	H	H	H	H	H	H	H	H	H	H

*7. Outputs f2 (117.2 kHz).
*8. "H" pulse when the tape is run.
*9. 21.5 μsec. cycle PWM signal.
*10. Normally "H". Temporarily "L" only during load/unload (drum reversal).
*11. Temporarily "H" only during cassette loading (To prevent your finger from being caught).
*12. H level is approx. 1.3 Vdc.
*13. Condition where edit search is pressed during the pause of a playback.
*14. Mode for adjustment.

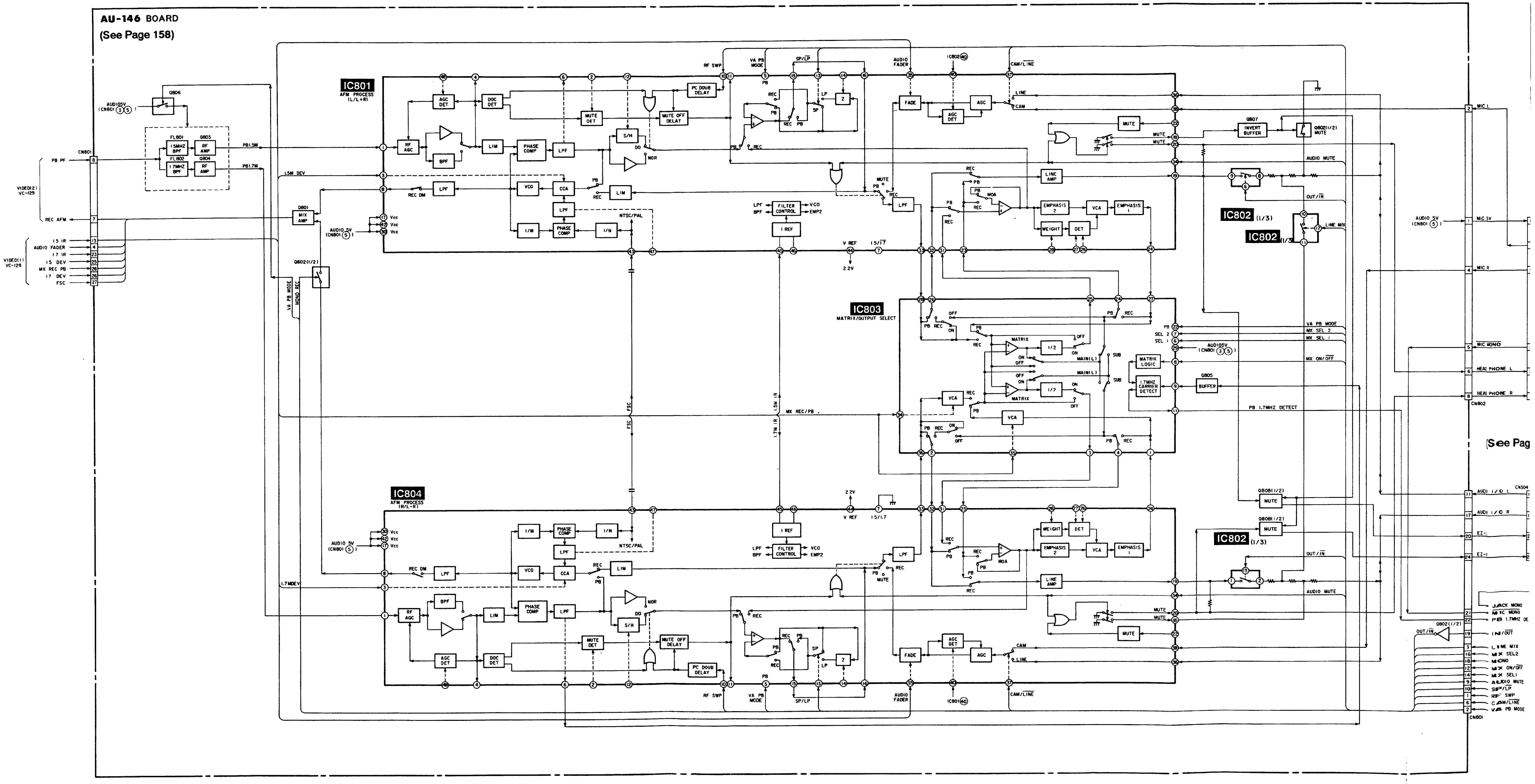
Timing Chart 1

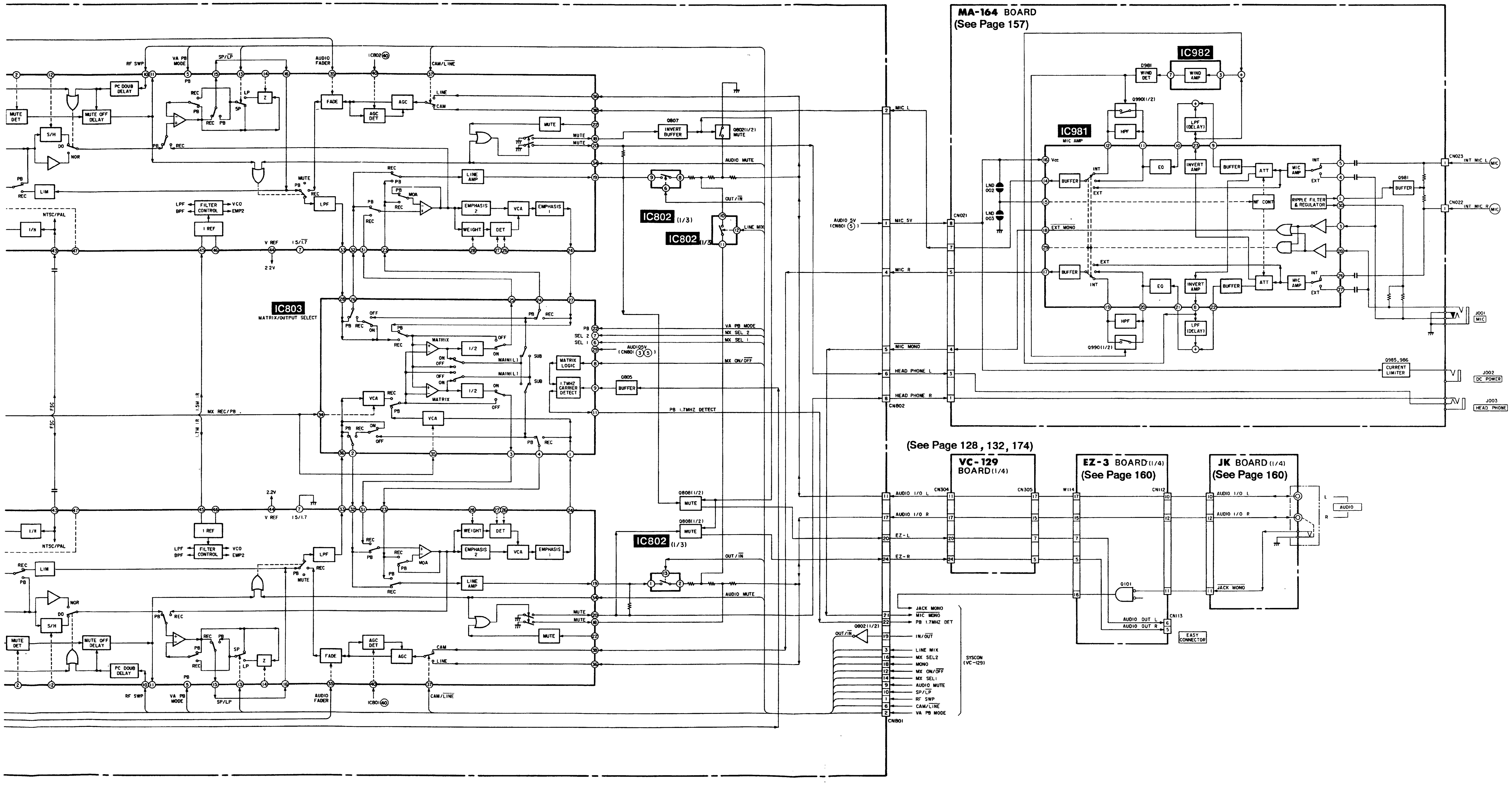

Channel of the active head
1A
2A
1B
2B
REC/PB MODE
RF SWP
1/2 RF SWP
REC/PB MODE
MUTE 1A
MUTE 2A
MUTE 1B
MUTE 2B

Timing Chart 2

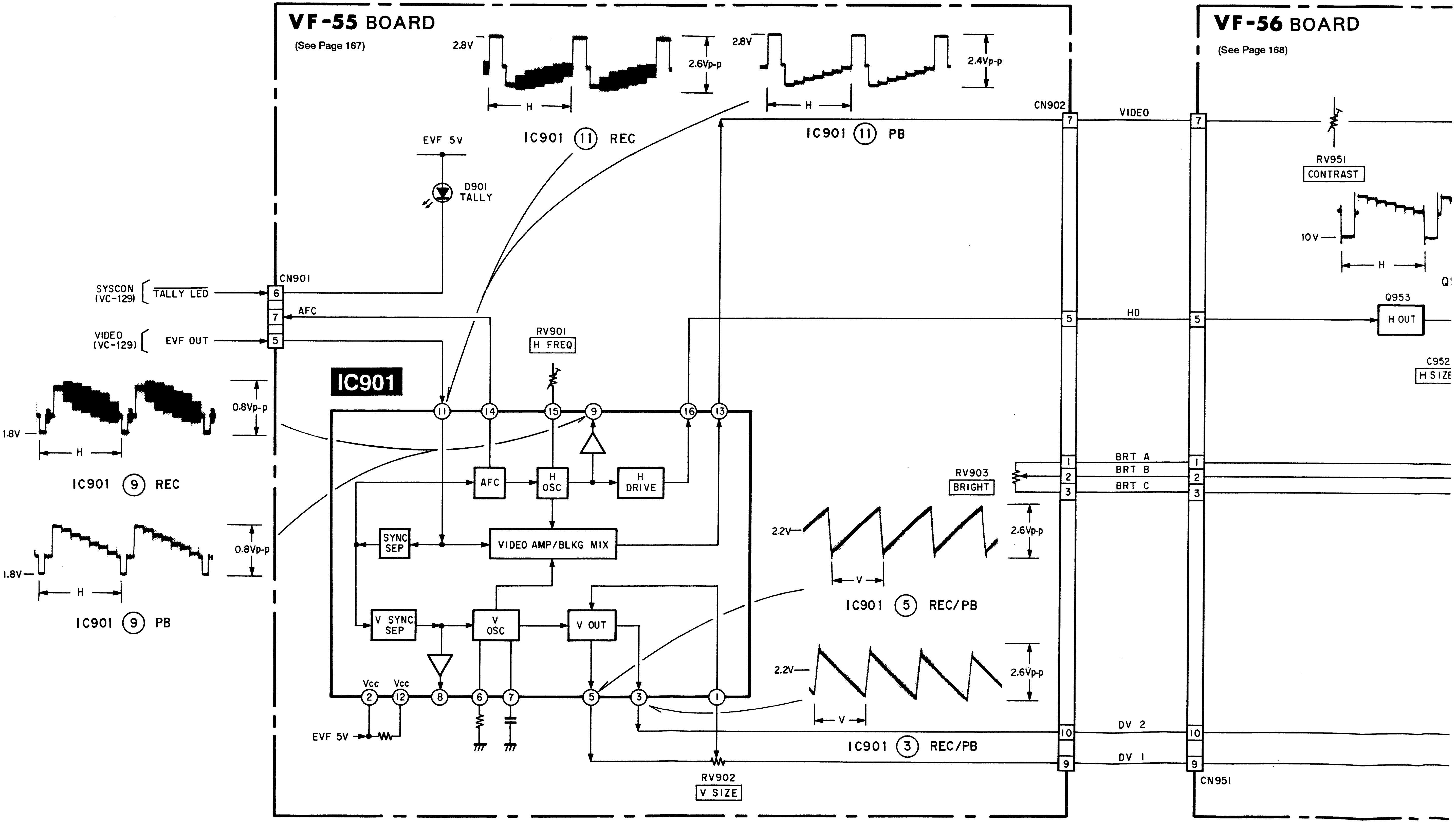

REC MODE
REC 1A
REC 2A
REC 1B
REC 2B

3-11. AUDIO BLOCK DIAGRAM


AU-146 BOARD
(See Page 158)
IC801
AFM PROCESS (L/L+R)
IC804
AFM PROCESS (R/L+R)
IC802 (1/3)
IC803
MATRIX/OUTPUT SELECT
CN801
CN802
CN304
VIDEO(2) VC-129
VIDEO(1) VC-129
PB PF
REC AFM
1.5 IR
AUDIO FADER
1.7 IR
1.5 DEV
MX REC PB
1.7 DEV
FSC
FL801 1.5MHZ BPF
FL802 1.7MHZ BPF
Q803 RF AMP
Q804 RF AMP
Q806
Q801 MIX AMP
Q802(1/2)
Q805 BUFFER
Q807 INVERT BUFFER
Q808(1/2) MUTE
AUDIO5V (CN801 ⑤)
RF AGC
AGC DET
DOC DET
LIM
PHASE COMP
LPF
BPF
VCO
CCA
I/M
I/N
S/H
NOR
DO
MUTE DET
MUTE OFF DELAY
PC DOUB DELAY
RF SWP
VA PB MODE
SP/LP
AUDIO FADER
CAM/LINE
FADE
AGC
LINE
CAM
MUTE
LINE AMP
EMPHASIS 2
EMPHASIS 1
VCA
WEIGHT
DET
MOA
FILTER CONTROL
I REF
V REF
1.5/1.7
2.2V
NTSC/PAL
MATRIX
MATRIX LOGIC
1.7MHZ CARRIER DETECT
MAIN(L)
SUB
SEL 2
SEL 1
MX REC/PB
PB 1.7MHZ DETECT
AUDIO MUTE
OUT/IN
LINE MIX
MIC L
MIC 5V
MIC R
MIC MONO
HEAD PHONE L
HEAD PHONE R
AUDI I/O L
AUDI I/O R
EZ-
EZ-I
JACK MONO
MIC MONO
PB 1.7MHZ DE
IN/OUT
LINE MIX
MX SEL2
MONO
MX ON/OFF
MX SEL1
AUDIO MUTE
SP/LP
RF SWP
CAM/LINE
VA PB MODE
VA PB MODE
MX SEL 2
MX SEL 1
MX ON/OFF
[See Pag


MA-164 BOARD
(See Page 157)
IC982
IC981
MIC AMP
WIND DET
WIND AMP
LPF (DELAY)
HPF
EQ
INVERT AMP
BUFFER
ATT
MIC AMP
INT
EXT
RIPPLE FILTER & REGULATOR
NF CONT
EXT MONO
Q981
BUFFER
CN023
INT MIC L
CN022
INT MIC R
J001 MIC
Q985,986 CURRENT LIMITER
J002 DC POWER
J003 HEAD PHONE
CN021
MIC L
MIC 5V
MIC R
MIC MONO
HEAD PHONE L
HEAD PHONE R
CN802
AUDIO 5V (CN801 ⑤)
IC803
MATRIX/OUTPUT SELECT
IC802 (1/3)
IC802
MATRIX
MATRIX LOGIC
1.7MHZ CARRIER DETECT
Q805 BUFFER
Q807 INVERT BUFFER
Q808(1/2) MUTE
MUTE
LINE AMP
EMPHASIS 2
EMPHASIS 1
VCA
WEIGHT
DET
FADE
AGC
AGC DET
PC DOUB DELAY
MUTE OFF DELAY
MUTE DET
S/H
LIM
FILTER CONTROL
I REF
LPF
BPF
VCO
EMP2
V REF
2.2V
1.5/1.7
NTSC/PAL
RF SWP
VA PB MODE
SP/LP
AUDIO FADER
CAM/LINE
AUDIO MUTE
OUT/IN
LINE MIX
VA PB MODE
MX SEL 2
MX SEL 1
MX ON/OFF
PB 1.7MHZ DETECT
MX REC/PB
(See Page 128, 132, 174)
VC-129 BOARD(1/4)
CN304
CN305
EZ-3 BOARD(1/4)
(See Page 160)
W114
CN112
CN113
Q101
AUDIO OUT L
AUDIO OUT R
EASY CONNECTOR
JK BOARD(1/4)
(See Page 160)
AUDIO I/O L
AUDIO I/O R
EZ-L
EZ-R
JACK MONO
AUDIO
L
R
MIC MONO
PB 1.7MHZ DET
IN/OUT
MONO
SP/LP
RF SWP
CAM/LINE
VA PB MODE
SYSCON (VC-129)
CN801
Q802(1/2)

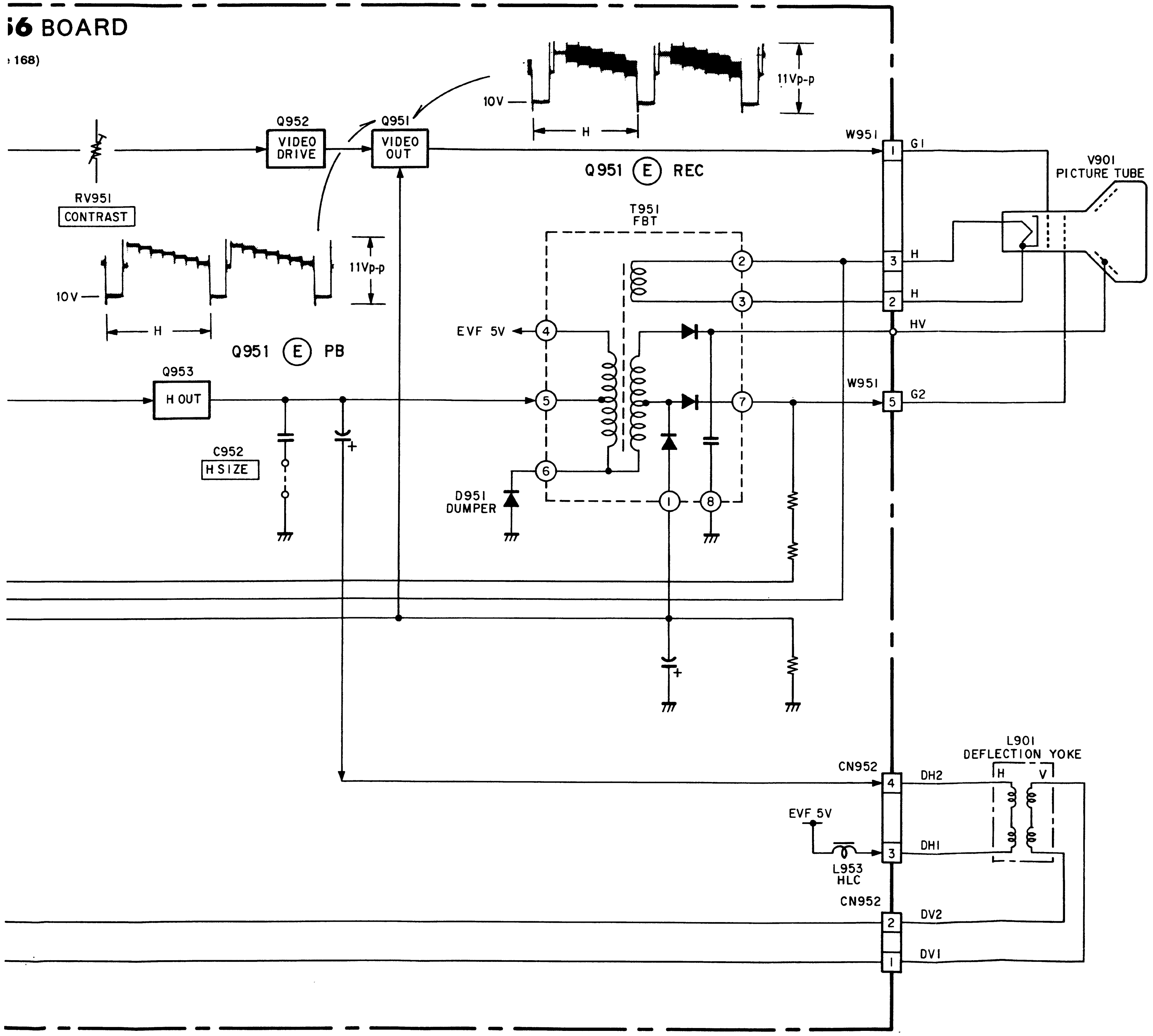
3-12. EVF BLOCK DIAGRAM



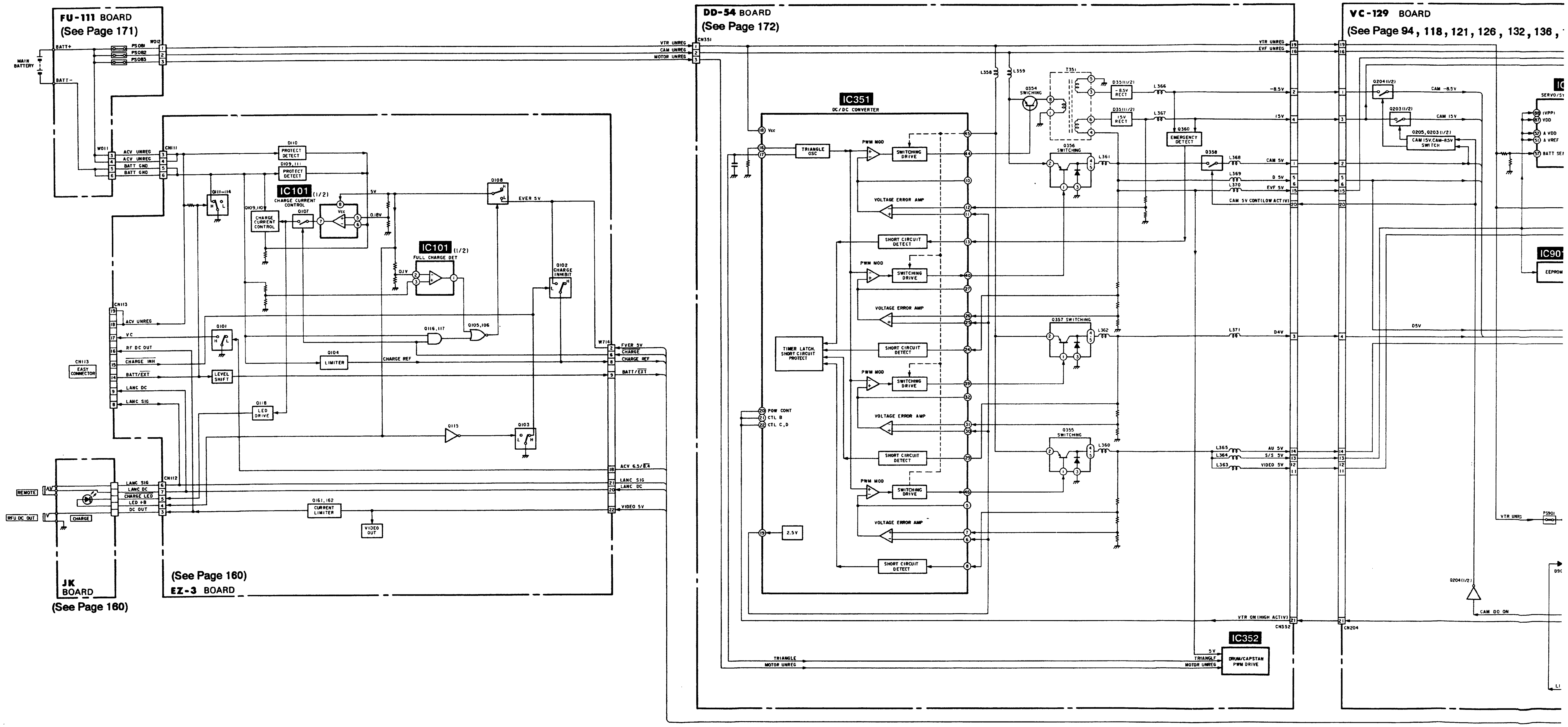
VF-55 BOARD
(See Page 167)
VF-56 BOARD
(See Page 168)
2.8V
2.6Vp-p
H
IC901 (11) REC
2.8V
2.4Vp-p
H
IC901 (11) PB
EVF 5V
D901
TALLY
CN901
SYSCON (VC-129)
TALLY LED
AFC
VIDEO (VC-129)
EVF OUT
6
7
5
1.8V
0.8Vp-p
H
IC901 (9) REC
1.8V
0.8Vp-p
H
IC901 (9) PB
IC901
RV901
H FREQ
11
14
15
9
16
13
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
Vcc
Vcc
2
12
8
6
7
5
3
1
EVF 5V
RV902
V SIZE
2.2V
2.6Vp-p
V
IC901 (5) REC/PB
2.2V
2.6Vp-p
V
IC901 (3) REC/PB
RV903
BRIGHT
CN902
VIDEO
HD
BRT A
BRT B
BRT C
DV 2
DV 1
7
5
1
2
3
10
9
CN951
RV951
CONTRAST
10V
H
Q953
H OUT
C952
H SIZE

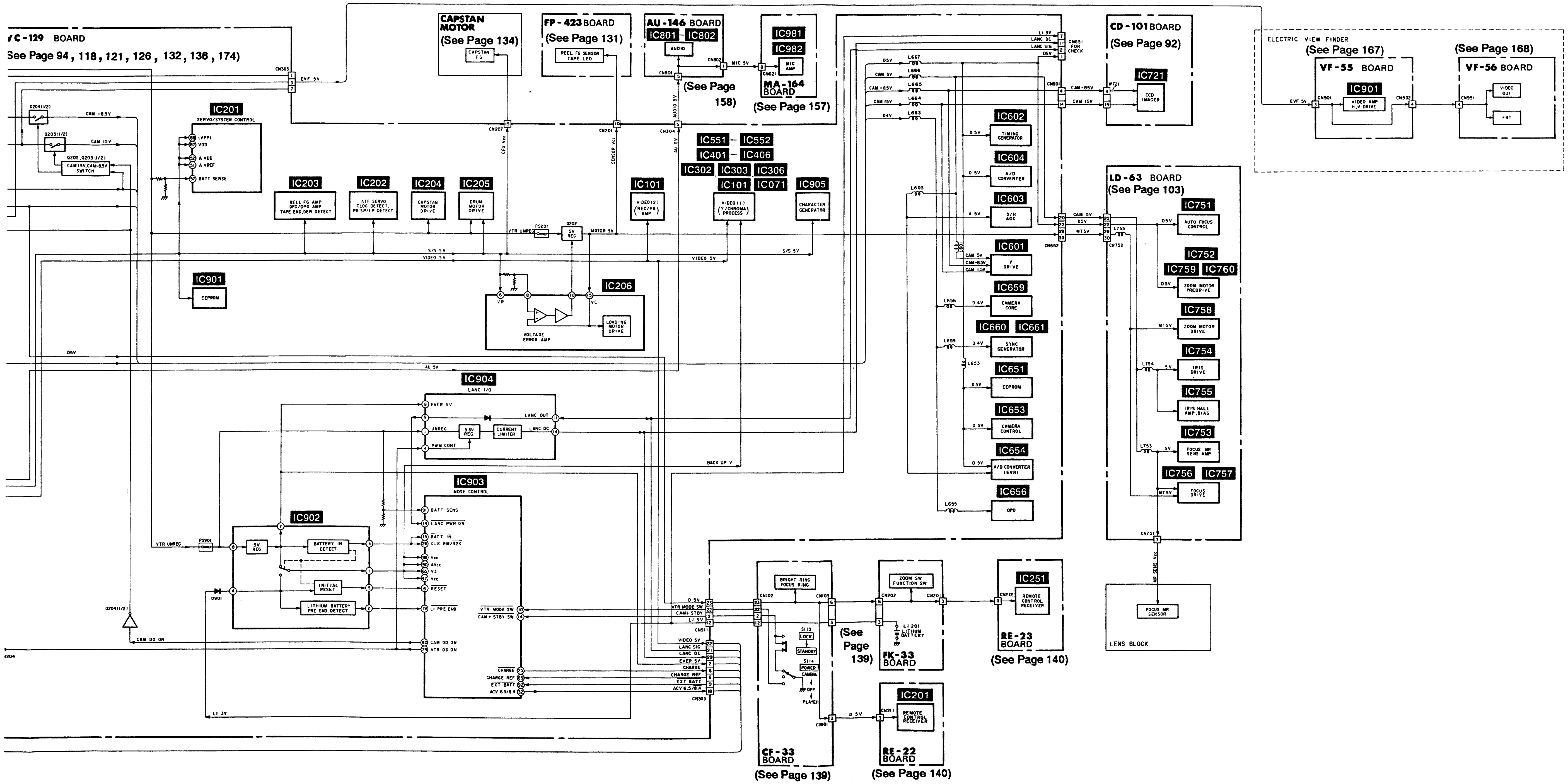
6 BOARD

168)

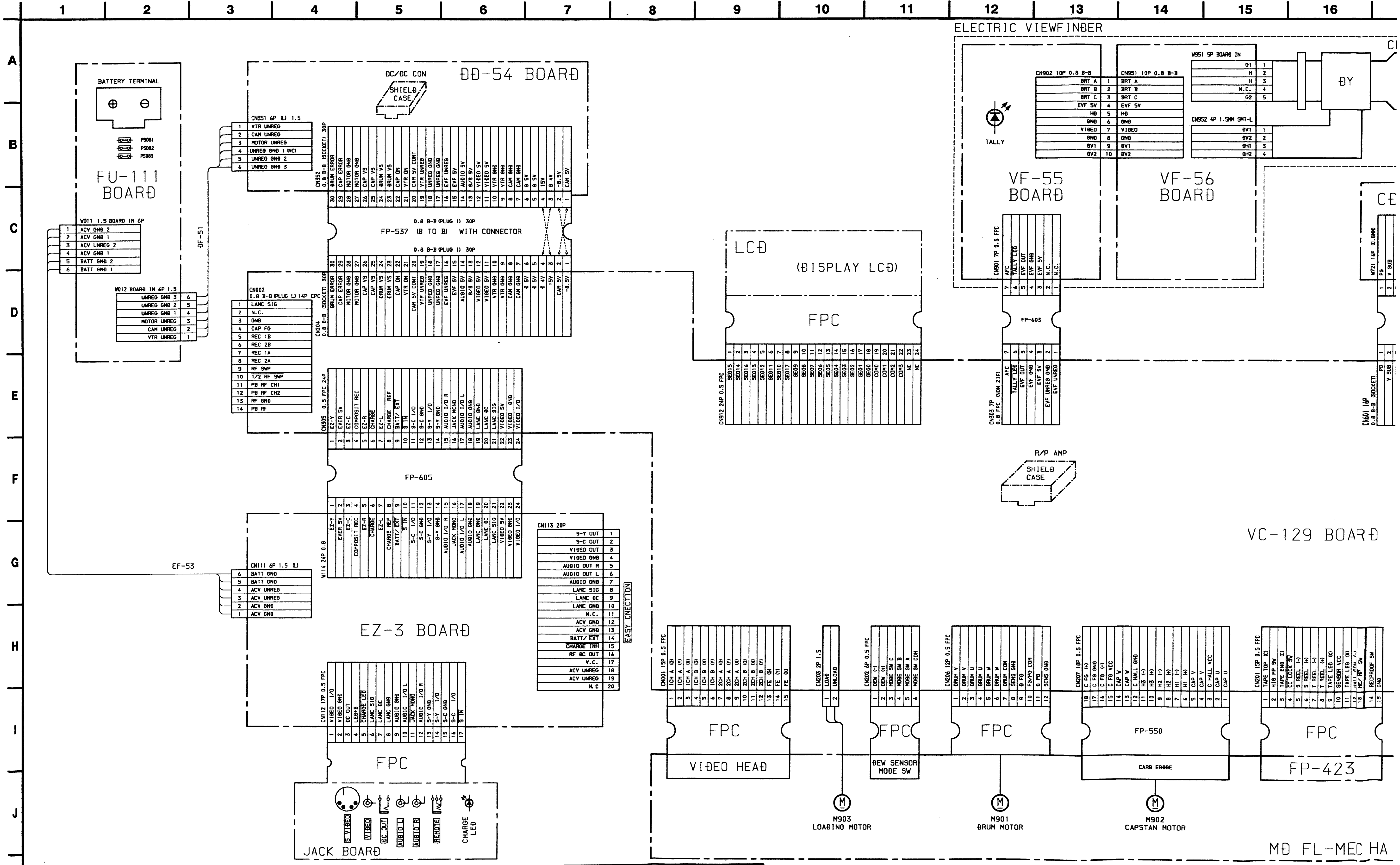

10V
11Vp-p
H
Q952
VIDEO DRIVE
Q951
VIDEO OUT
Q951 (E) REC
RV951
CONTRAST
10V
11Vp-p
H
Q951 (E) PB
W951
G1
V901
PICTURE TUBE
T951
FBT
2
3
4
5
6
7
8
1
H
H
HV
EVF 5V
W951
G2
Q953
H OUT
C952
H SIZE
D951
DUMPER
1
2
3
5
L901
DEFLECTION YOKE
H
V
CN952
DH2
4
EVF 5V
3
DH1
L953
HLC
CN952
2
DV2
1
DV1

3-13. POWER BLOCK DIAGRAM


FU-111 BOARD
(See Page 171)
MAIN BATTERY
BATT+
BATT−
PS081
PS082
PS083
W012
W011
ACV UNREG
BATT GND
CN111
CN113
D110 PROTECT DETECT
D109,111 PROTECT DETECT
IC101 (1/2)
CHARGE CURRENT CONTROL
Q107
Q108
EVER 5V
IC101 (1/2)
FULL CHARGE DET
Q102 CHARGE INHIBIT
Q101
Q116,117
Q105,106
Q104 LIMITER
CHARGE REF
LEVEL SHIFT
Q118 LED DRIVE
Q115
Q103
EASY CONNECTOR
VC
RF DC OUT
CHARGE INH
BATT/EXT
LANC DC
LANC SIG
REMOTE
RFU DC OUT
CHARGE
CN112
CHARGE LED
LED +B
DC OUT
Q161,162 CURRENT LIMITER
VIDEO OUT
W714
ACV 6.5/E4
VIDEO 5V
JK BOARD
(See Page 160)
(See Page 160)
EZ-3 BOARD
DD-54 BOARD
(See Page 172)
VTR UNREG
CAM UNREG
MOTOR UNREG
CN351
IC351
DC/DC CONVERTER
TRIANGLE OSC
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
SHORT CIRCUIT DETECT
TIMER LATCH, SHORT CIRCUIT PROTECT
POW CONT
CTL B
CTL C,D
2.5V
L358
L359
T351
Q354 SWITCHING
D351(1/2) −8.5V RECT
D351(2/2) 15V RECT
L366
L367
Q360 EMERGENCY DETECT
Q356 SWITCHING
L361
Q358
L368
L369
L370
CAM 5V
D 5V
EVF 5V
CAM 5V CONT(LOW ACTIV)
Q357 SWITCHING
L362
L371
D4V
Q355 SWITCHING
L360
L365
L364
L363
AU 5V
S/S 5V
VIDEO 5V
VTR ON(HIGH ACTIV)
CN352
IC352
DRUM/CAPSTAN PWM DRIVE
TRIANGLE
VC-129 BOARD
(See Page 94, 118, 121, 126, 132, 136,
Q204(1/2)
CAM −8.5V
Q203(1/2)
CAM 15V
Q205,Q203(1/2) CAM 15V,CAM−8.5V SWITCH
SERVO/S
VPP
VDD
A VDD
A VREF
BATT SE
IC901
EEPROM
D5V
VTR UNRG
PS901
Q204(1/2)
CAM DD ON
CN204


VC-129 BOARD
See Page 94, 118, 121, 126, 132, 136, 174)
CN303
EVF 5V
Q204(1/2)
CAM -8.5V
Q203(1/2)
CAM 15V
Q205, Q203(1/2)
CAM 15V, CAM-8.5V SWITCH
IC201
SERVO/SYSTEM CONTROL
(VPP)
VDD
A VDD
A VREF
BATT SENSE
IC901
EEPROM
CAPSTAN MOTOR
(See Page 134)
CAPSTAN FG
FP-423 BOARD
(See Page 131)
REEL FG SENSOR TAPE LED
AU-146 BOARD
IC801 - IC802
AUDIO
CN802
MIC 5V
CN801
(See Page 158)
IC981
IC982
MIC AMP
CN021
MA-164 BOARD
(See Page 157)
CN207
CFG Vcc
CN201
SENSOR Vcc
CN304
AUDIO 5V
AU 5V
IC203
RELL FG AMP DFG/DPG AMP TAPE END, DEW DETECT
IC202
ATF SERVO CLOG DETECT. PB SP/LP DETECT
IC204
CAPSTAN MOTOR DRIVE
IC205
DRUM MOTOR DRIVE
VTR UNREG
PS201
Q202
5V REG
MOTOR 5V
S/S 5V
VIDEO 5V
IC101
VIDEO(2) (REC/PB AMP)
IC551 - IC552
IC401 - IC406
IC302
IC303
IC306
IC101
IC071
VIDEO(1) (Y/CHROMA PROCESS)
IC905
CHARACTER GENERATOR
IC206
VR
VC
VOLTAGE ERROR AMP
LOADING MOTOR DRIVE
D5V
AU 5V
IC904
LANC I/O
EVER 5V
LANC OUT
UNREG
5.6V REG
CURRENT LIMITER
LANC DC
PWM CONT
BACK UP V
IC903
MODE CONTROL
BATT SENS
LANC PWR ON
BATT IN
CLK 8M/32K
Vcc
AVcc
V3
Vcc
RESET
LI PRE END
VTR MODE SW
CAM+STBY SW
CAM DD ON
VTR DD ON
CHARGE
CHARGE REF
EXT BATT
ACV 6.5/8.4
IC902
VTR UNREG
PS901
5V REG
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
D901
Q204(1/2)
CAM DD ON
LI 3V
Q204
LI 3V
LANC DC
LANC SIG
D5V
CN651 FOR CHECK
L667
CAM 5V
L666
CAM -8.5V
L665
CAM 15V
L664
D4V
L663
CN601
CAM-8.5V
CAM 15V
IC602
D 5V
TIMING GENERATOR
IC604
A/D CONVERTER
IC603
L603
A 5V
S/H AGC
CAM 5V
MT5V
CN652
IC601
L601
CAM 5V
CAM-8.5V
CAM 1.5V
V DRIVE
IC659
L656
D 4V
CAMERA CORE
IC660
IC661
L659
SYNC GENERATOR
L653
IC651
EEPROM
IC653
CAMERA CONTROL
IC654
A/D CONVERTER (EVR)
IC656
L655
OPD
CD-101 BOARD
(See Page 92)
W721
IC721
CCD IMAGER
LD-63 BOARD
(See Page 103)
L755
CN752
IC751
AUTO FOCUS CONTROL
IC752
IC759
IC760
ZOOM MOTOR PREDRIVE
IC758
MT5V
ZOOM MOTOR DRIVE
IC754
L754
5V
IRIS DRIVE
IC755
IRIS HALL AMP, BIAS
IC753
L753
FOCUS MR SENS AMP
IC756
IC757
FOCUS DRIVE
CN751
MR SENS Vcc
FOCUS MR SENSOR
LENS BLOCK
ELECTRIC VIEW FINDER
(See Page 167)
VF-55 BOARD
CN901
IC901
VIDEO AMP H,V DRIVE
CN902
(See Page 168)
VF-56 BOARD
CN951
VIDEO OUT
FBT
D 5V
VTR MODE SW
CAM+STBY
LI 3V
CN911
VIDEO 5V
LANC SIG
LANC DC
EVER 5V
CHARGE
CHARGE REF
EXT BATT
ACV 6.5/8.4
CN305
BRIGHT RING FOCUS RING
CN102
CN103
S113
LOCK
STANDBY
S114
POWER
CAMERA
OFF
PLAYER
CN101
CF-33 BOARD
(See Page 139)
ZOOM SW FUNCTION SW
CN202
CN201
LI 201 LITHIUM BATTERY
(See Page 139)
FK-33 BOARD
IC251
CN212
REMOTE CONTROL RECEIVER
RE-23 BOARD
(See Page 140)
CN211
IC201
REMOTE CONTROL RECEIVER
RE-22 BOARD
(See Page 140)

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS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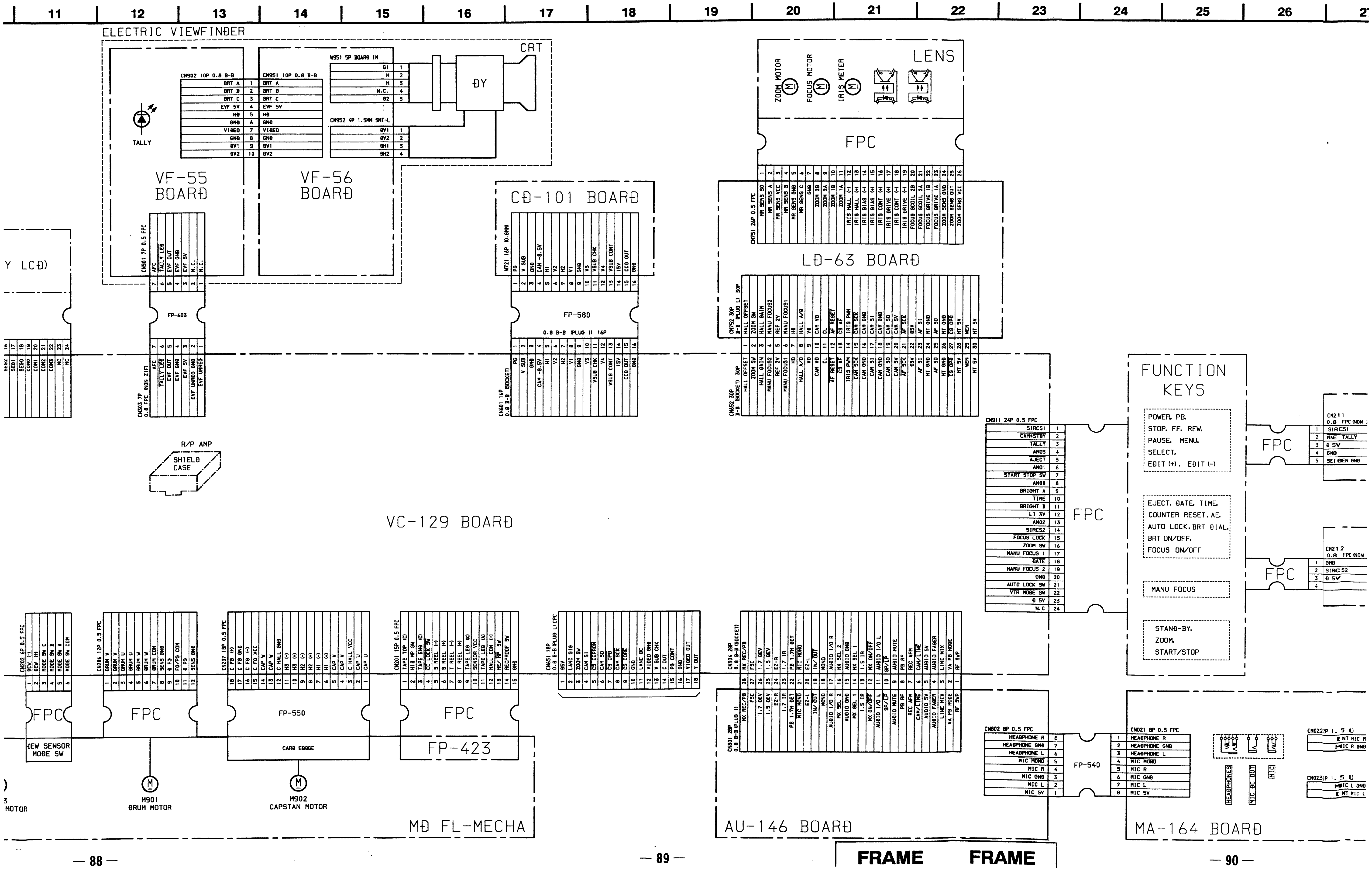
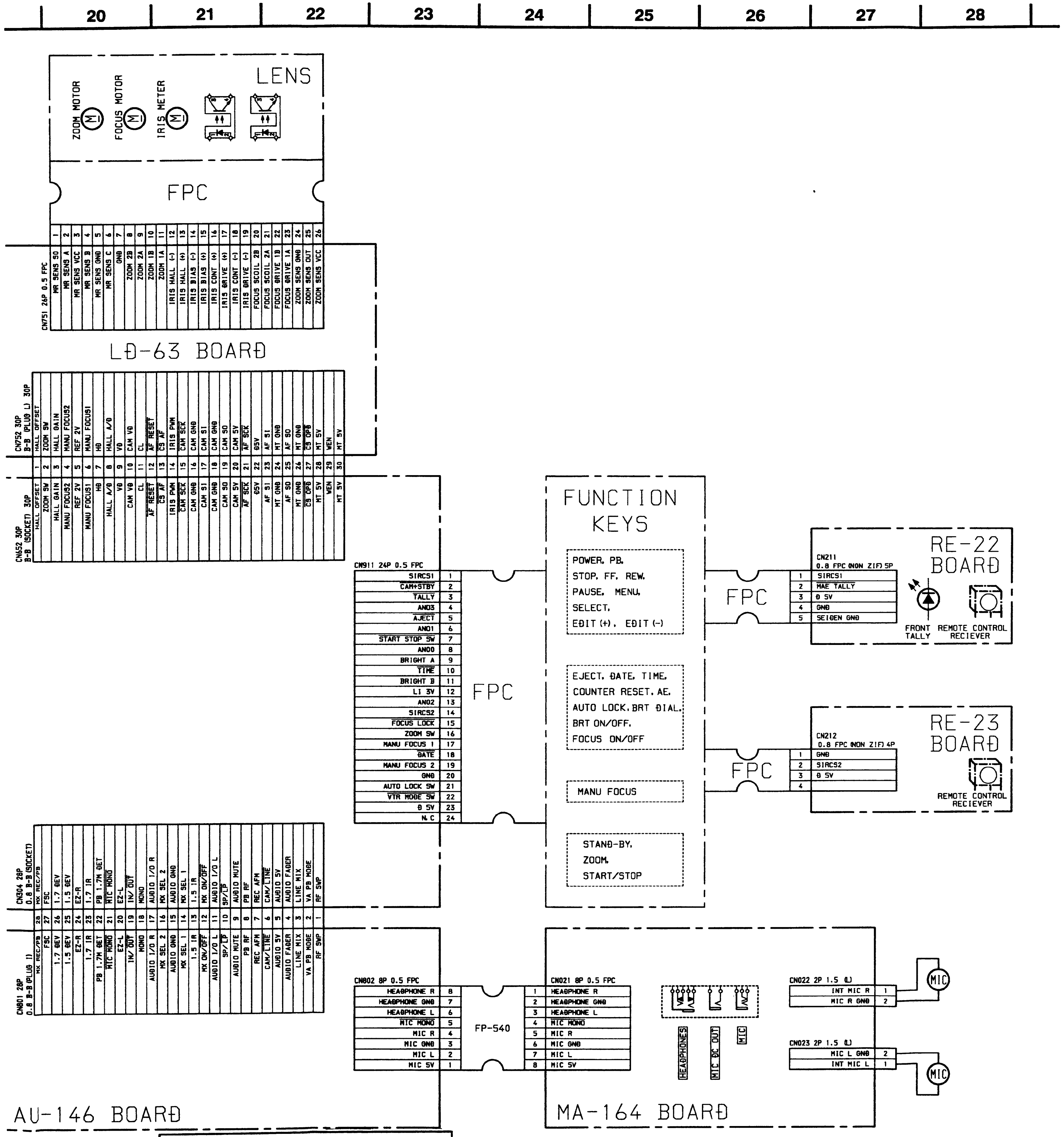
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
BATTERY TERMINAL
PS081
PS082
PS083
FU-111 BOARD
W011 1.5 BOARD IN 6P
ACV GND 2
ACV GND 1
ACV UNREG 2
ACV GND 1
BATT GND 2
BATT GND 1
W012 BOARD IN 6P 1.5
UNREG GND 3
UNREG GND 2
UNREG GND 1
MOTOR UNREG
CAM UNREG
VTR UNREG
DF-51
CN351 6P (L) 1.5
VTR UNREG
CAM UNREG
MOTOR UNREG
UNREG GND 1 (NC)
UNREG GND 2
UNREG GND 3
DC/DC CON
SHIELD CASE
DD-54 BOARD
CN352 0.8 B-B (SOCKET) 30P
0.8 B-B (PLUG 1) 30P
FP-537 (B TO B) WITH CONNECTOR
CN002 0.8 B-B (PLUG L) 14P CPE
LANC SIG
N.C.
GND
CAP FG
REC 1B
REC 2B
REC 1A
REC 2A
RF SWP
1/2 RF SWP
PB RF CH1
PB RF CH2
RF GND
PB RF
CN204 0.8 B-B (SOCKET) 30P
CN305 0.5 FPC 24P
FP-605
W114 24P 0.8
EF-53
CN111 6P 1.5 (L)
BATT GND
BATT GND
ACV UNREG
ACV UNREG
ACV GND
ACV GND
EZ-3 BOARD
CN113 20P
S-Y OUT
S-C OUT
VIDEO OUT
VIDEO GND
AUDIO OUT R
AUDIO OUT L
AUDIO GND
LANC SIG
LANC DC
LANC GND
N.C.
ACV GND
ACV GND
BATT/ EXT
CHARGE INH
RF DC OUT
V.C.
ACV UNREG
ACV UNREG
N.C
EASY CNECTION
CN112 17P 0.5 FPC
FPC
JACK BOARD
S VIDEO
VIDEO
DC OUT
AUDIO L
AUDIO R
REMOTE
CHARGE LED
ELECTRIC VIEWFINDER
CN902 10P 0.8 B-B
BRT A
BRT B
BRT C
EVF 5V
HD
GND
VIDEO
GND
DV1
DV2
CN951 10P 0.8 B-B
W951 SP BOARD IN
CN952 4P 1.5MM SMT-L
DY
TALLY
VF-55 BOARD
VF-56 BOARD
CN901 7P 0.5 FPC
AFC
TALLY LED
EVF OUT
EVF GND
EVF 5V
N.C.
FP-603
CN303 7P 0.8 FPC (NON ZIF)
EVF UNREG GND
EVF UNREG
CI
CE
W721 16P (0.8MM)
PG
V SUB
CN601 16P 0.8 B-B (SOCKET)
LCD
(DISPLAY LCD)
FPC
CN912 24P 0.5 FPC
R/P AMP
SHIELD CASE
VC-129 BOARD
CN001 15P 0.5 FPC
CN203 2P 1.5
LOAD
UNLOAD
CN202 6P 0.5 FPC
CN206 12P 0.5 FPC
CN207 18P 0.5 FPC
CN201 15P 0.5 FPC
FPC
FPC
FPC
FP-550
FPC
VIDEO HEAD
DEW SENSOR MODE SW
CARD EDGE
FP-423
M903 LOADING MOTOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
MD FL-MECHA

FRAME **FRAME**



11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
ELECTRIC VIEWFINDER
CRT
DY
TALLY
VF-55 BOARD
VF-56 BOARD
CN902 10P 0.8 B-B
CN951 10P 0.8 B-B
W951 5P BOARD IN
CN952 4P 1.5MM SMT-L
CN901 7P 0.5 FPC
FP-603
CN303 7P 0.8 FPC (NON ZIF)
LENS
ZOOM MOTOR
FOCUS MOTOR
IRIS METER
FPC
CN751 26P 0.5 FPC
LD-63 BOARD
CN752 30P B-B (PLUG L) 30P
CN652 30P B-B (SOCKET) 30P
CD-101 BOARD
W721 16P (0.8MM)
FP-580
0.8 B-B (PLUG L) 16P
CN401 16P 0.8 B-B (SOCKET)
Y LCD)
R/P AMP
SHIELD CASE
VC-129 BOARD
CN911 24P 0.5 FPC
FPC
FUNCTION KEYS
POWER, PB, STOP, FF, REW, PAUSE, MENU, SELECT, EDIT (+), EDIT (-)
EJECT, DATE, TIME, COUNTER RESET, AE, AUTO LOCK, BRT DIAL, BRT ON/OFF, FOCUS ON/OFF
MANU FOCUS
STAND-BY, ZOOM, START/STOP
CN211 0.8 FPC (NON
CN212 0.8 FPC (NON
CN202 6P 0.5 FPC
FPC
DEW SENSOR MODE SW
CN206 12P 0.5 FPC
FPC
M901 DRUM MOTOR
CN207 18P 0.5 FPC
FP-550
CARD EDGE
M902 CAPSTAN MOTOR
CN201 15P 0.5 FPC
FPC
FP-423
MD FL-MECHA
CN651 18P 0.8 B-B (PLUG L) CPC
CN304 28P 0.8 B-B (SOCKET)
CN801 28P 0.8 B-B (PLUG L)
AU-146 BOARD
CN802 8P 0.5 FPC
FP-540
CN021 8P 0.5 FPC
HEADPHONES
MIC DC OUT
MIC
CN022 1P 1.5 U
CN023 1P 1.5 U
MA-164 BOARD
MOTOR
FRAME
FRAME


20
21
22
23
24
25
26
27
28
LENS
ZOOM MOTOR
FOCUS MOTOR
IRIS METER
FPC
CN751 26P 0.5 FPC
LD-63 BOARD
CN752 30P B-B (PLUG L)
CN652 30P B-B (SOCKET)
FUNCTION KEYS
POWER, PB,
STOP, FF, REW,
PAUSE, MENU,
SELECT,
EDIT (+), EDIT (-)
EJECT, DATE, TIME,
COUNTER RESET, AE,
AUTO LOCK, BRT DIAL,
BRT ON/OFF,
FOCUS ON/OFF
MANU FOCUS
STAND-BY,
ZOOM,
START/STOP
CN911 24P 0.5 FPC
RE-22 BOARD
CN211 0.8 FPC (NON ZIF) 5P
FRONT TALLY
REMOTE CONTROL RECIEVER
RE-23 BOARD
CN212 0.8 FPC (NON ZIF) 4P
REMOTE CONTROL RECIEVER
CN304 28P 0.8 B-B (SOCKET)
CN801 28P 0.8 B-B (PLUG I)
CN802 8P 0.5 FPC
FP-540
CN021 8P 0.5 FPC
CN022 2P 1.5
CN023 2P 1.5
MIC
MIC
HEADPHONES
MIC DC OUT
MIC
AU-146 BOARD
MA-164 BOARD

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.

(The other layers'patterns are not indicated.)

- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ● : Through hole is omitted.

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

Four types of printed wiring board diagrams have been provided for the above conductor and component sides in this service manual (those with patterns and those without).

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.
- ⊡ : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repeair.*
- ━━ : B+ Line.*
- ‐‐‐ : B– Line.*
- ⇨ : IN/OUT direction of (+, –) B LINE.*

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

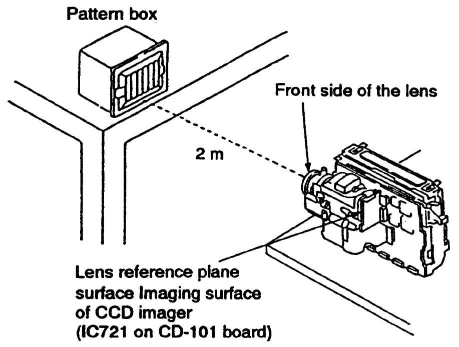
*: indicated by the color red.

- **Measuring conditions voltage value and waveform.**

(CAMERA block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.*
  Readings are taken with a digital multimeter (DC 10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

1. Connection


Pattern box
Front side of the lens
2 m
Lens reference plane surface Imaging surface of CCD imager (IC721 on CD-101 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

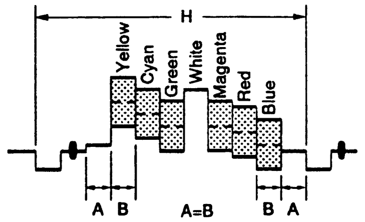

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A

Fig. a (Video output terminal output waveform)

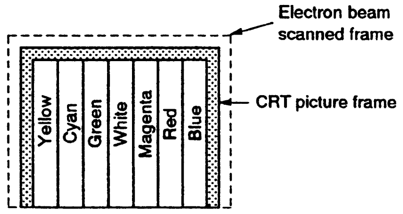

Electron beam scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. b (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, AUDIO, VIEW FINDER block)

- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

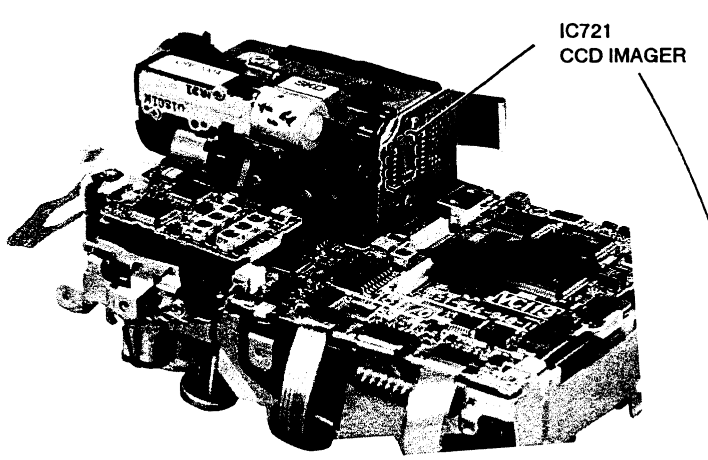
There are not the external input terminal (VIDEO/AUDIO IN) and REC switch in AEP, UK model. Accordingly, perform as the followings for REC mode.*

Signal input:	Refer to the video signal input method for the model without the external input terminal described in VIDEO BLOCK ADJUSTMENTS (page 266, Fig. 9-1).*
REC mode:	Refer to the transition method to REC mode for the model without the external input terminal described in VIDEO BLOCK ADJUSTMENTS (page 265, 9-1-3).*

CD-101 (CCD IMAGER), VC-129 (CAMERA 1) SCHEMATIC DIAGRAMS

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. CD-101 BOARD: 1000 series, VC-129 BOARD: 2000 series —

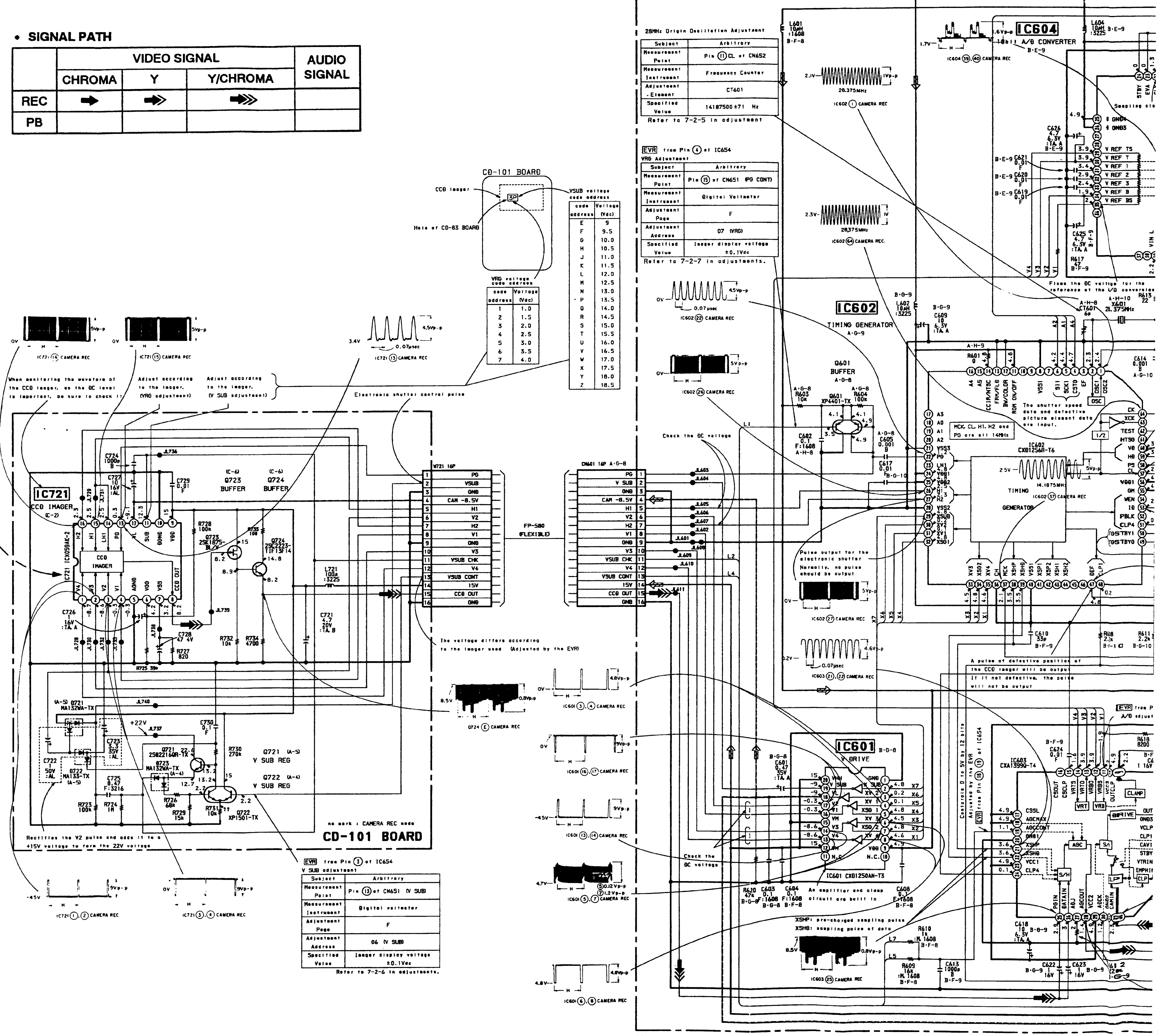

IC721
CCD IMAGER

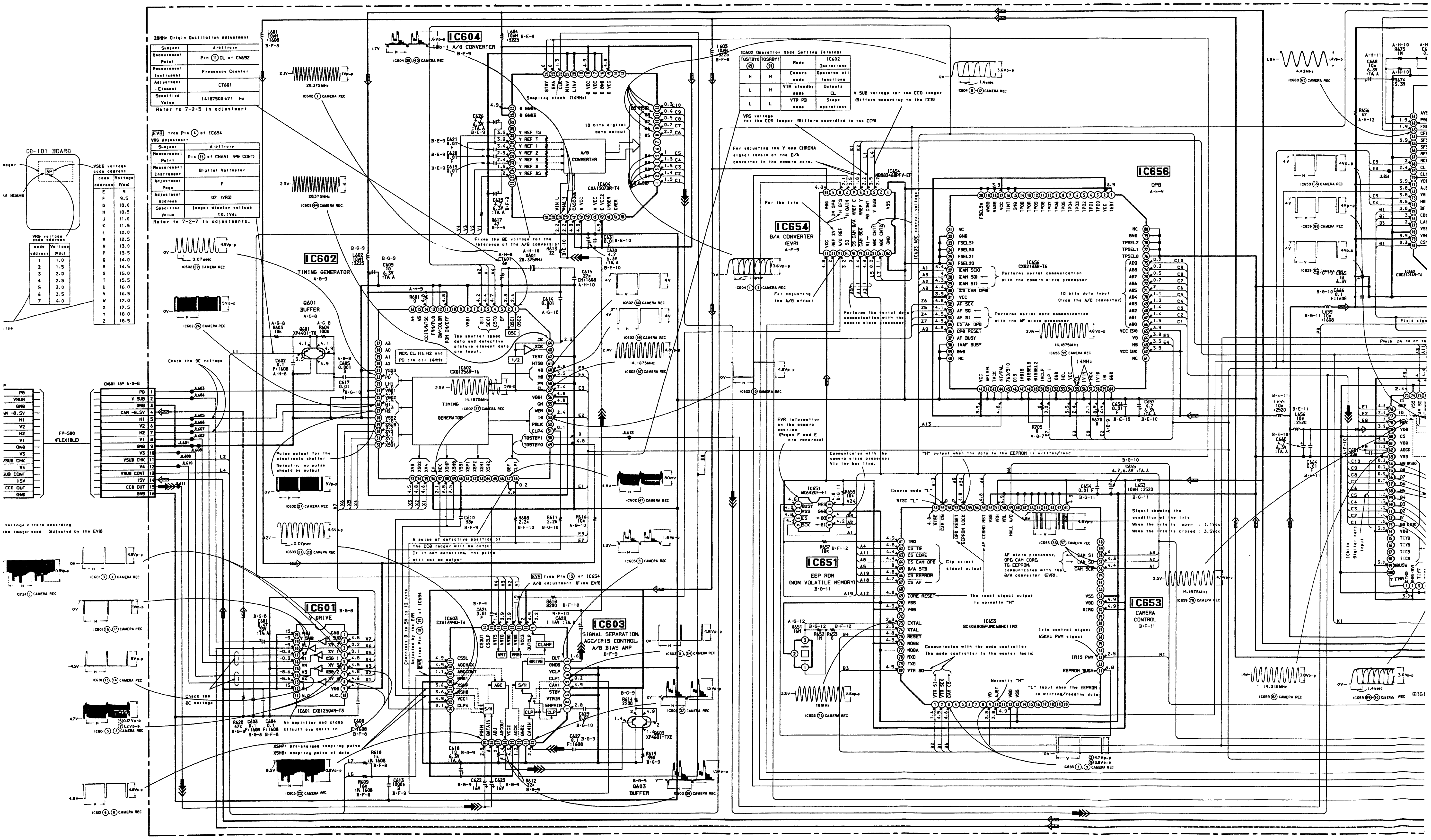
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇒	⇛	
PB				

Precautions Upon Replacing CCD Imager

- Some CCD imagers (IC721 of CD-101 board) of this unit require the correction data.
  The correction data has been input to page F, addresses 1F to 2E of the camera EEPROM (IC651 of VC-129 board). Moreover, the same data has also been input as backup data to page D, addresses E0 to EF of the VTR EEPROM (IC901 of VC-129 board).
  This correction data is not required for CCD imagers which are provided for repairs. Therefore, input 00 to page F, addresses 1F to 2E of the camera EEPROM. And input 00 to page D, addresses E0 to EF of VTR EEPROM. For details of inputting, refer to "Camera Adjustments".
- The CD-101 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
IC721
CCD IMAGER
CD-101 BOARD
Q723 BUFFER
Q724 BUFFER
Q721 V SUB REG
Q722 V SUB REG
FP-580 (FLEXIBLE)
IC604 A/D CONVERTER
IC602 TIMING GENERATOR
IC601 DRIVE
IC603
Q601 BUFFER
CD-101 BOARD
Electronic shutter control pulse
09


CD-101 BOARD
3P
FP-580 (FLEXIBLE)
CN601 16P A-0-8
IC604 A/D CONVERTER B-E-9
IC604 CXA1507BR-T4
IC602 TIMING GENERATOR A-0-9
IC602 CX01256R-T6
Q601 BUFFER A-G-8
IC601 DRIVE B-G-8
IC601 CXD1250AN-T3
IC603 SIGNAL SEPARATION. AGC/IRIS CONTROL. A/D BIAS AMP B-F-9
IC603 CXA1399Q-T4
Q603 BUFFER
IC654 D/A CONVERTER (EVR) A-F-9
IC654 MB88346BPFV-EF
IC656 DPG A-E-9
IC656 CX82133R-T6
IC651 EEP ROM (NON VOLATILE MEMORY) B-0-11
IC651 AK6420F-E1
IC653 CAMERA CONTROL B-F-11
IC653 SC406805FUMC6BHC11H2
For adjusting the Y and CHROMA signal levels of the D/A converter in the camera core.
VRG voltage for the CCD imager (Differs according to the CCD)
V SUB voltage for the CCD imager (Differs according to the CCD)
Check the DC voltage
EVR information on the camera section (Pages F and E are recorded)
Communicates with the camera micro processor Via the bus line.
Performs serial communication with the camera micro processor
Performs serial data communication with the AF micro processor
10 bits data input (from the A/D converter)
The reset signal output is normally "H"
Communicates with the mode controller. The mode controller is the master (main)
Iris control signal 65KHz PWM signal
"L" input when the EEPROM is writing/reading data
"H" output when the data to the EEPROM is written/read
Signal showing the condition of the iris. When the iris is open : 1.1Vdc. When the iris is closed : 5.5Vdc
Pulse output for the electronic shutter. Normally, no pulse should be output
A pulse of defective position of the CCD imager will be output. If it not defective, the pulse will not be output
The shutter speed data and defective picture element data are input.
MCK, CL, H1, H2 and PG are all 14MHz
Fixes the DC voltage for the reference of the A/D converter
10 bits digital data output
Sampling clock (14MHz)
XSHP: pre-charged sampling pulse. XSHD: sampling pulse of data
An amplifier and clamp circuit are built in
For adjusting the A/D offset
For the iris
Clip select signal output
AF micro processor, DPG, CAM CORE, TG, EEPROM communicates with the D/A converter (EVR).
EVR from Pin ⑬ of IC654 A/D adjustment (From EVR)
Controls 0 to 5V by 12 bits
28.375MHz
14.1875MHz
14.318MHz
16MHz

28MHz Origin Oscillation Adjustment

Subject	Arbitrary
Measurement Point	Pin ⑪ CL of CN652
Measurement Instrument	Frequency Counter
Adjustment Element	CT601
Specified Value	14187500 ± 71 Hz

Refer to 7-2-5 in adjustment

EVR from Pin ④ of IC654
VRG Adjustment

Subject	Arbitrary
Measurement Point	Pin ⑮ of CN651 (PG CONT)
Measurement Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	07 (VRG)
Specified Value	Imager display voltage ±0.1Vdc

Refer to 7-2-7 in adjustments.

VRG voltage code address

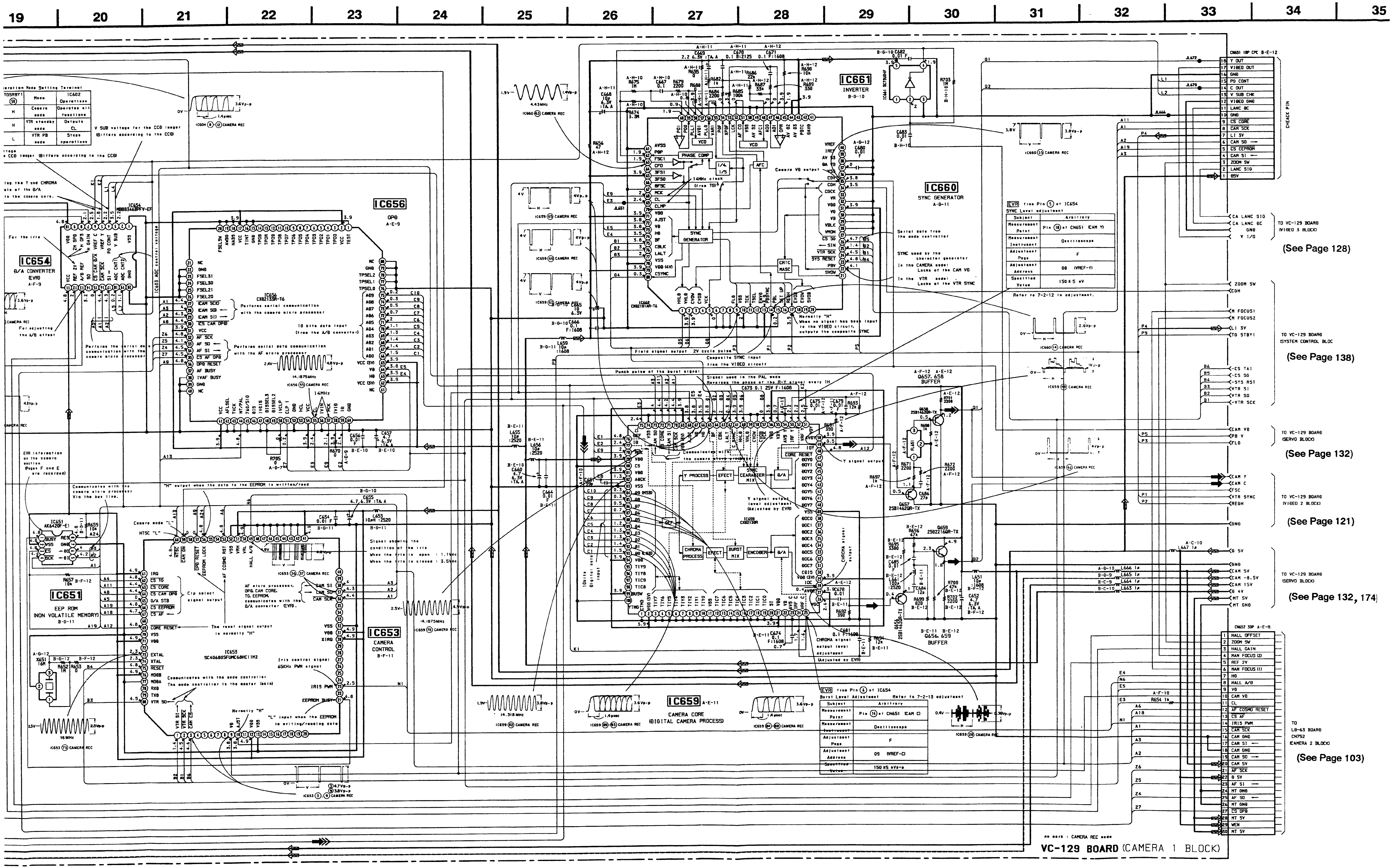
code address	Voltage (Vdc)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

VSUB voltage code address

code address	Voltage (Vdc)
E	9
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

IC602 Operation Mode Setting Terminal

TGSTBY0 ㊾	TGSRBY1 ㊿	Mode	IC602 Operations
H	H	Camera mode	Operates all functions
L	H	VTR standby mode	Outputs CL
L	L	VTR PB mode	Stops operations


19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
IC654
D/A CONVERTER
EVR
A-F-9
IC656
OPB
A-E-9
IC661
INVERTER
B-G-10
IC660
SYNC GENERATOR
A-G-11
IC651
EEP ROM
(NON VOLATILE MEMORY)
B-G-11
IC653
CAMERA
CONTROL
B-F-11
IC659
CAMERA CORE
(DIGITAL CAMERA PROCESS)
Q657, 658
BUFFER
Q656, 659
BUFFER
EVR from Pin 5 of IC654
SYNC Level adjustment
Subject: Arbitrary
Measurement Point: Pin 18 of CN651 (CAM Y)
Measurement Instrument: Oscilloscope
Adjustment Page: F
Adjustment Address: 08 (VREF-Y)
Specified Value: 150 ± 5 mV
Refer to 7-2-12 in adjustment.
EVR from Pin 6 of IC654
Burst Level Adjustment
Refer to 7-2-13 adjustment
Subject: Arbitrary
Measurement Point: Pin 14 of CN651 (CAM C)
Measurement Instrument: Oscilloscope
Adjustment Page: F
Adjustment Address: 09 (VREF-C)
Specified Value: 150 ±5 mVp-p
CHROMA signal output level adjustment (Adjusted by EVR)
CN651 18P CPE B-E-12
18 Y OUT
17 VIDEO OUT
16 GND
15 PG CONT
14 C OUT
13 V SUB CHK
12 VIDEO GND
11 LANC DC
10 GND
9 CS CORE
8 CAM SCK
7 LI 3V
6 CAM SO
5 CS EEPROM
4 CAM SI
3 ZOOM SW
2 LANC SIG
1 8SV
CHECK PIN
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 128)
TO VC-129 BOARD (SYSTEM CONTROL BLOC)
(See Page 138)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 132)
TO VC-129 BOARD (VIDEO 2 BLOCK)
(See Page 121)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 132, 174)
CN652 30P A-E-8
1 HALL OFFSET
2 ZOOM SW
3 HALL GAIN
4 MAN FOCUS (2)
5 REF 2V
6 MAN FOCUS (1)
7 HO
8 HALL A/B
9 VD
10 CAM VD
11 CL
12 AF COSMO RESET
13 CS AF
14 IRIS PWM
15 CAM SCK
16 CAM GND
17 CAM SI
18 CAM GND
19 CAM SO
20 CAM 5V
21 AF SCK
22 8 5V
23 AF SI
24 MT GND
25 AF SO
26 MT GND
27 CS OPB
28 MT 5V
29 WEN
30 MT 5V
TO LB-63 BOARD CN752 (CAMERA 2 BLOCK)
(See Page 103)
** mark : CAMERA REC mode
VC-129 BOARD (CAMERA 1 BLOCK)

CAMERA 1 **CAMERA 1**

CD-101 (CCD IMAGER) PRINTED WIRING BOARD

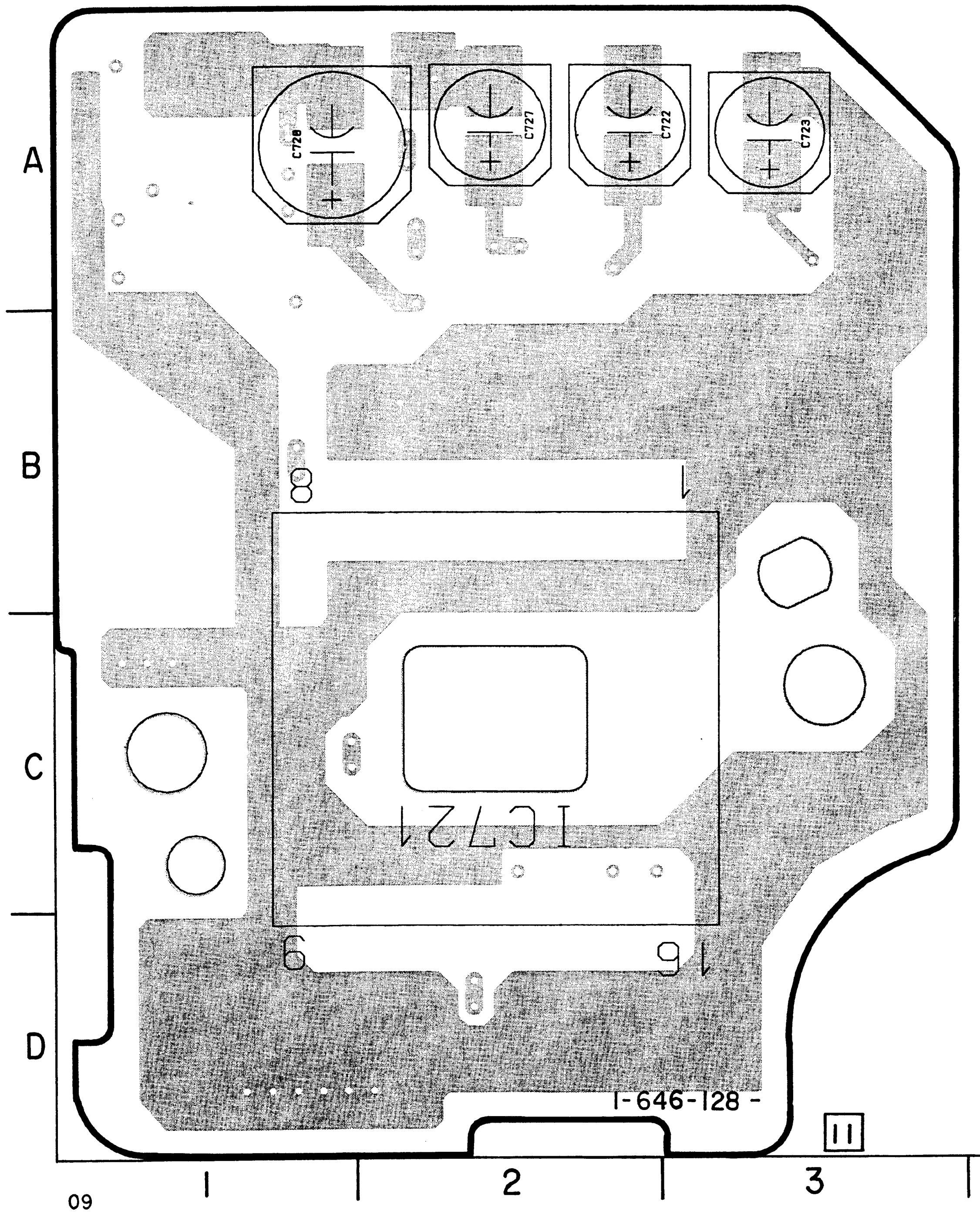
— Ref. No. CD-101 BOARD: 1000 series —

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

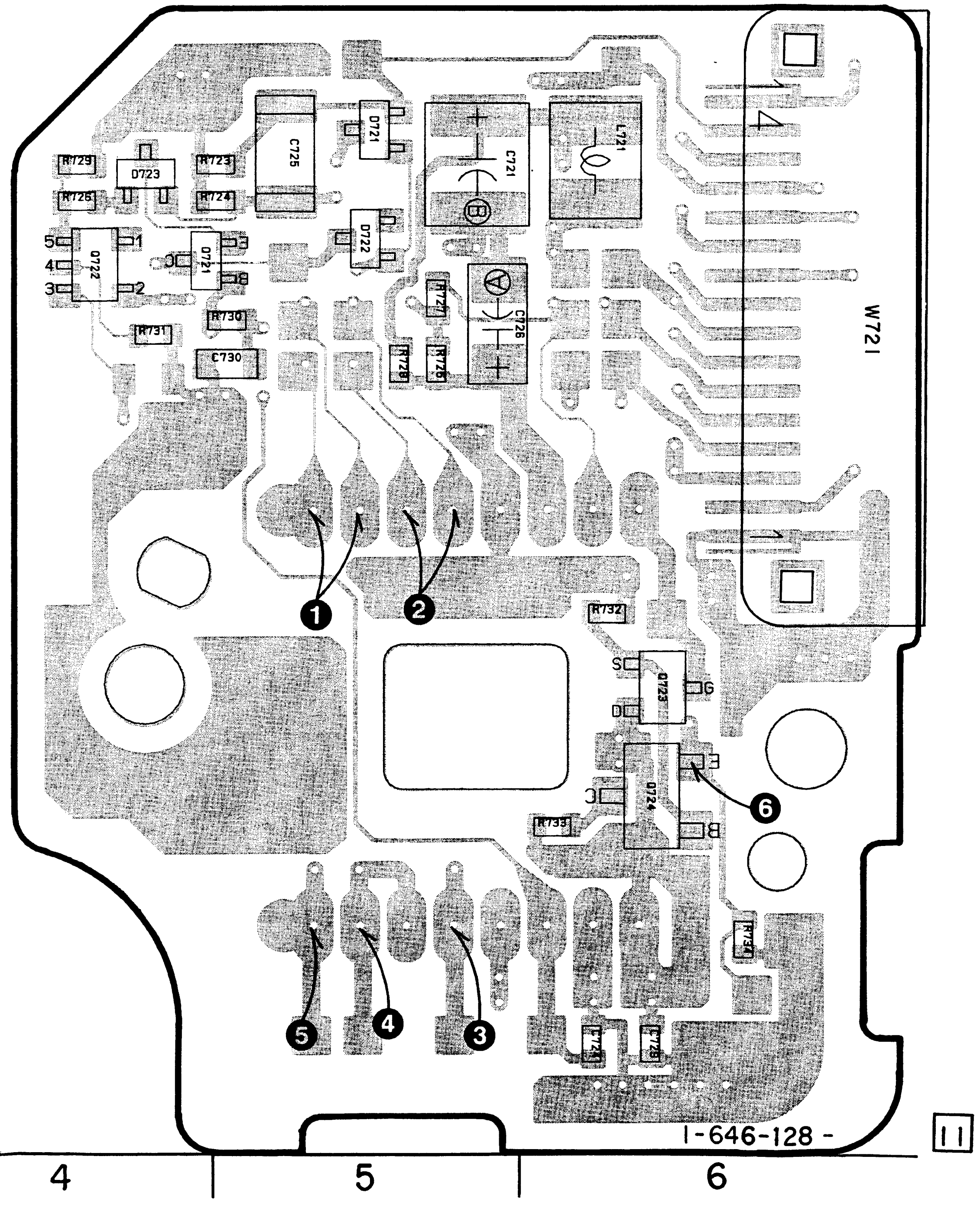
- **For printed wiring boards**
- CD-101 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

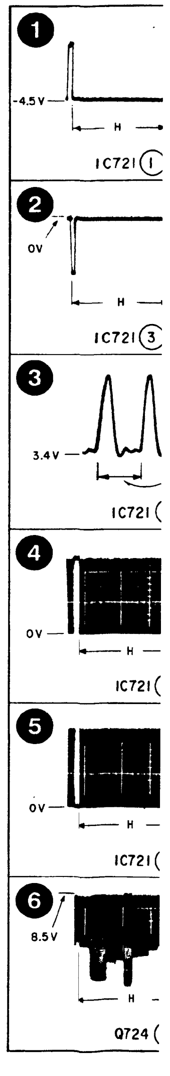
CD-101 BOARD (COMPONENT SIDE)


A
B
C
D
C728
C727
C722
C723
8
1
IC721
9
16
1-646-128 -
11
1
2
3

CD-101 BOARD (CONDUCTOR SIDE)


R729
D723
R723
R726
R724
C725
D721
D722
C721
L721
5
4
3
1
2
Q722
Q721
R731
R730
C730
R727
R728
R725
C726
W721
1
2
R732
S
Q723
G
D
Q724
R733
6
5
4
3
1-646-128 -
11
4
5
6

CD-101 BOAR

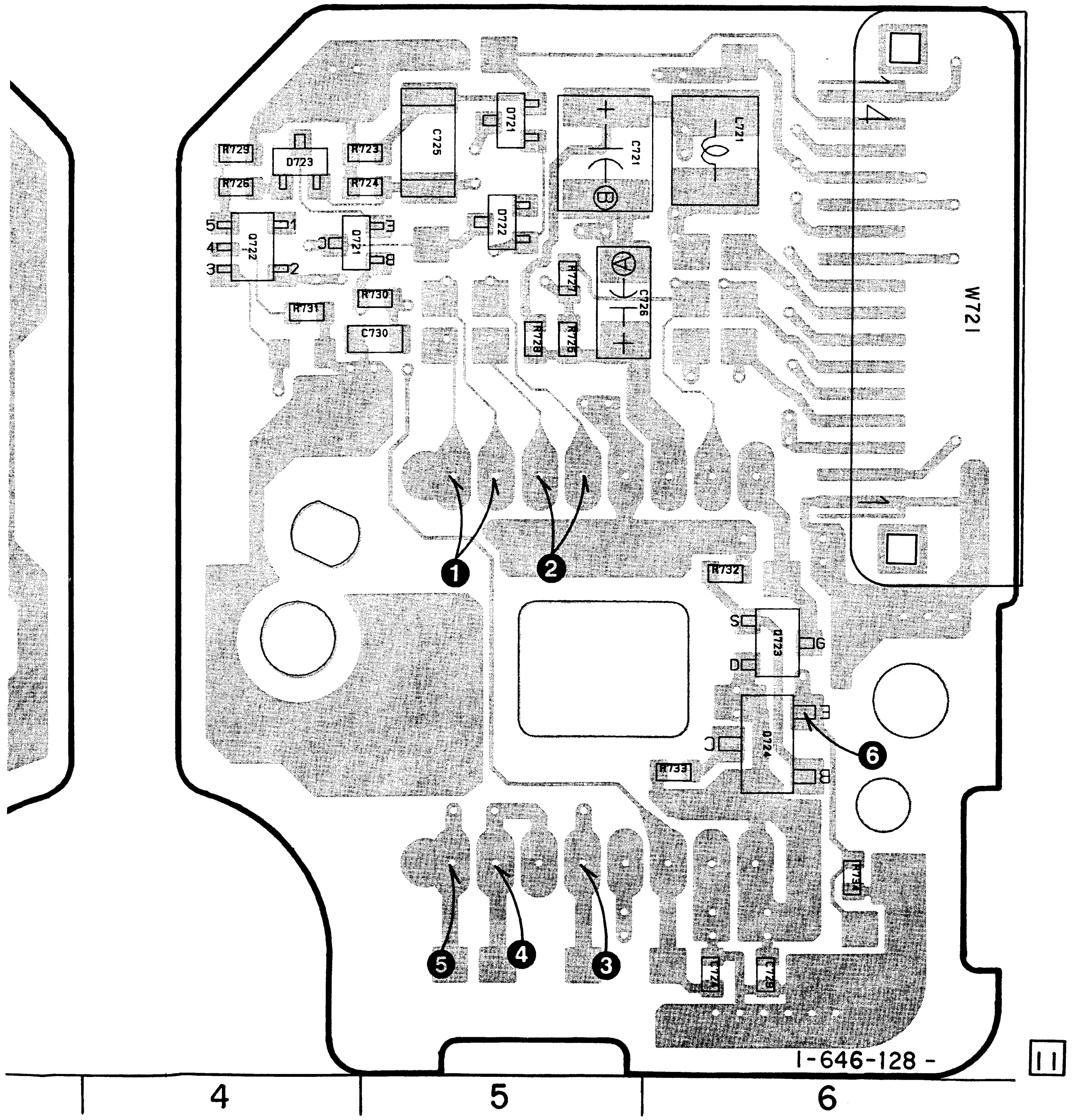


wever, the patterns
e diagram.

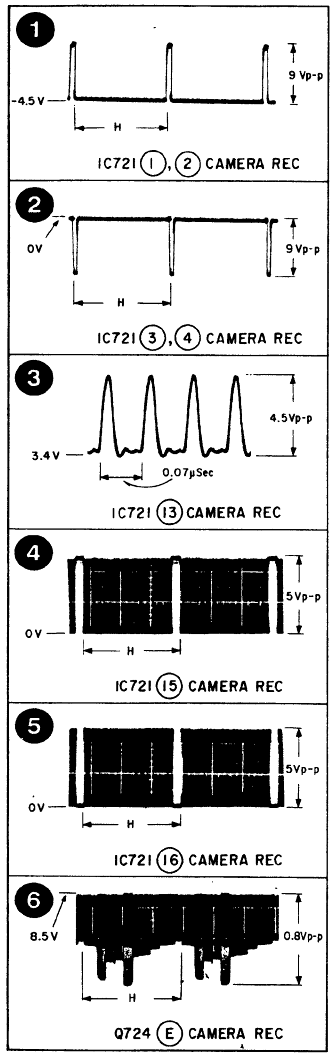
d.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

CD-101 BOARD (CONDUCTOR SIDE)


R729
D723
R723
C725
D721
C721
L721
R726
R724
5
4
3
Q722
1
2
Q721
D722
R727
C726
R731
R730
C730
R728
R725
W721
❶
❷
R732
S
D
Q723
G
C
Q724
B
E
❻
R733
R734
C724
C729
❺
❹
❸
1-646-128 -
11
4
5
6

CD-101BOARD



IC721 ①, ② CAMERA REC

IC721 ③, ④ CAMERA REC

IC721 ⑬ CAMERA REC

IC721 ⑮ CAMERA REC

IC721 ⑯ CAMERA REC

Q724 Ⓔ CAMERA REC

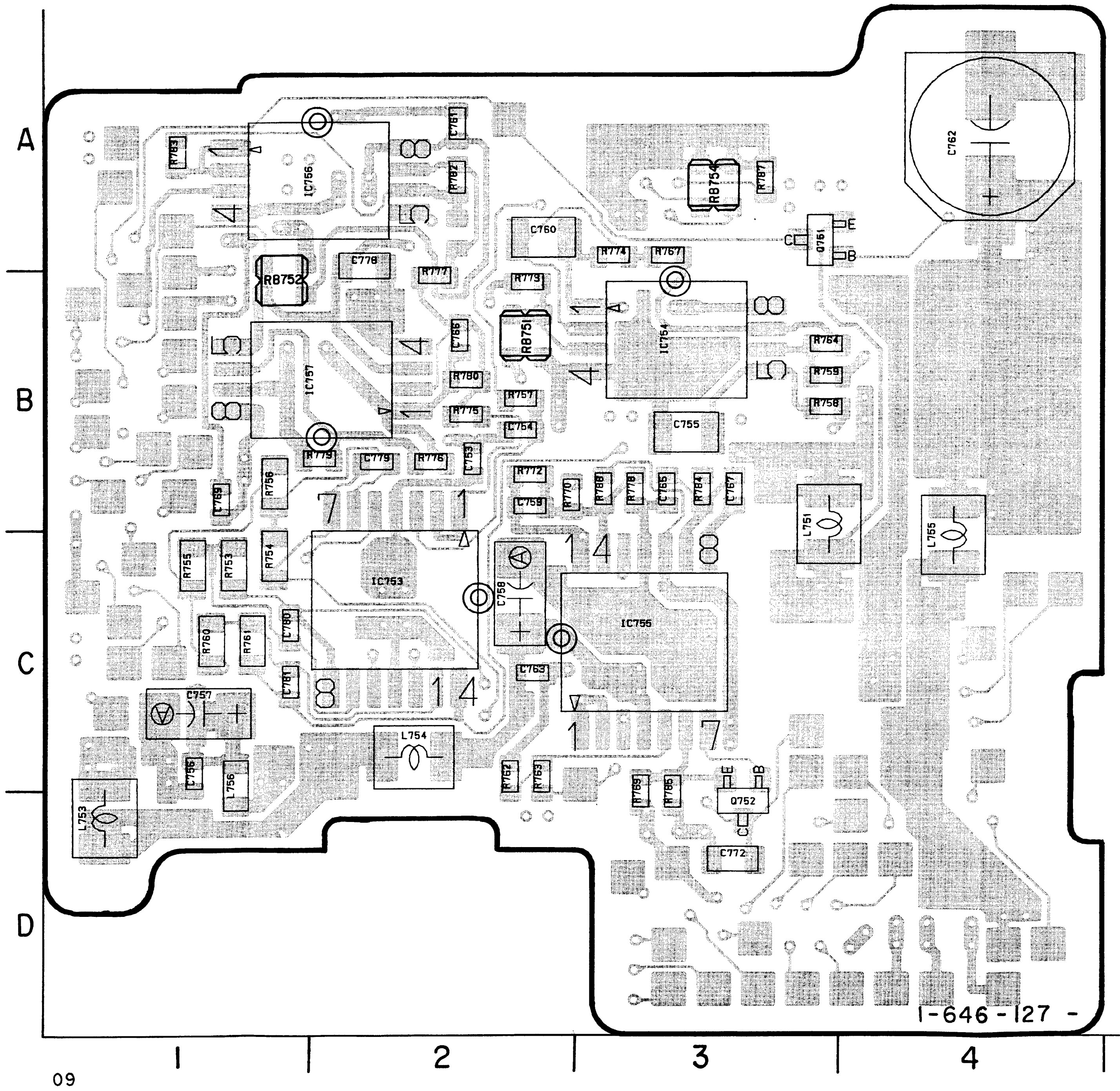
LD-63 (ZOOM LENS UNIT DRIVE) PRINTED WIRING BOARD

— Ref. No. LD-63 BOARD: 3000 series —

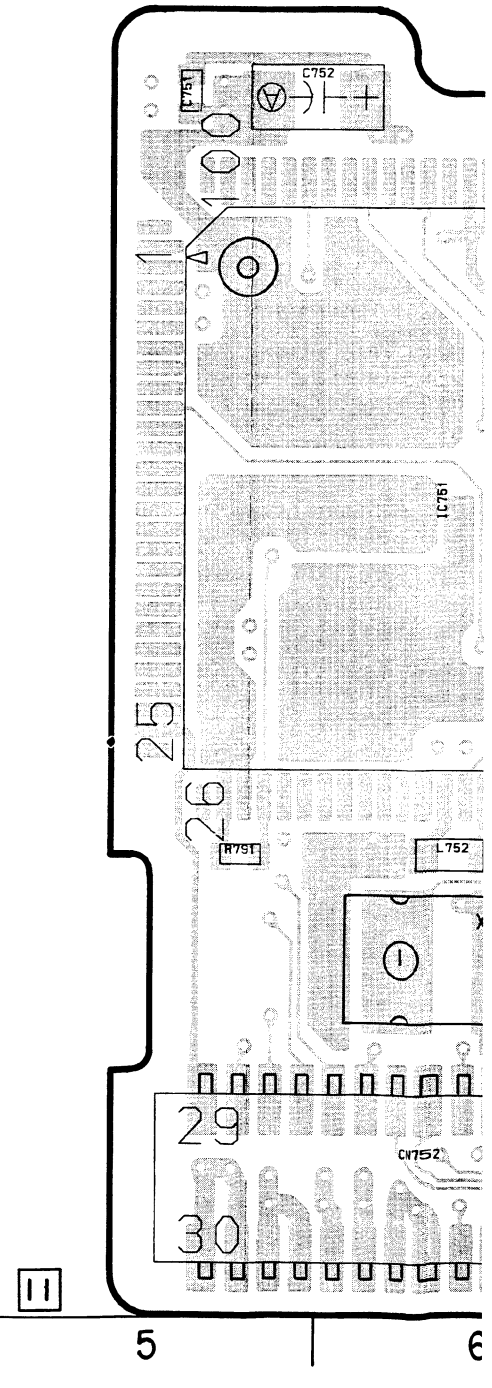
- **For printed wiring boards**
- LD-63 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

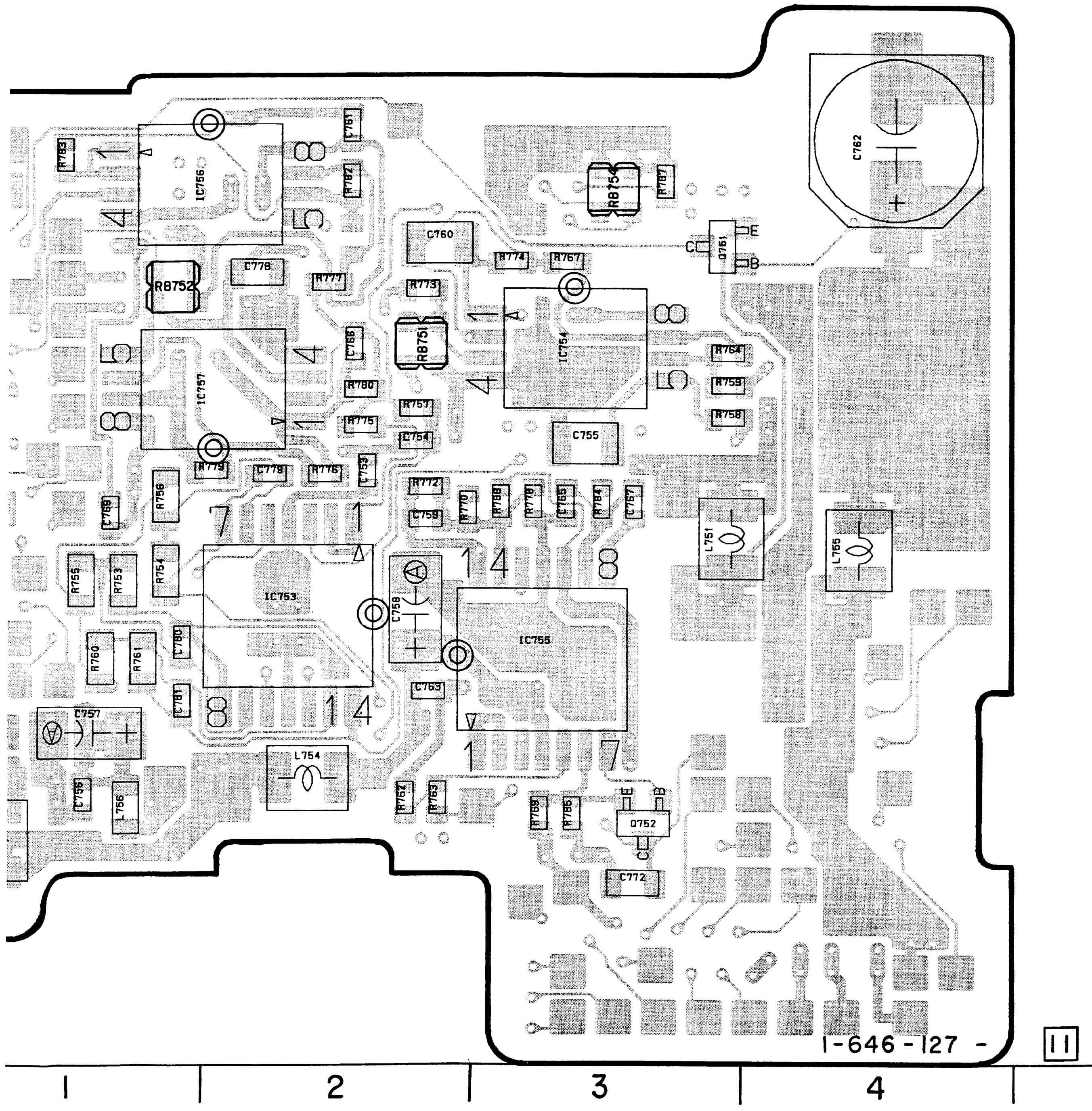
LD-63 BOARD (COMPONENT SIDE)


A
B
C
D
1
2
3
4
09
C762
IC756
R783
R781
R782
R8754
R787
Q761
E
B
C760
R774
R767
R8752
C778
R777
R773
R8751
IC757
IC754
C768
R764
R759
R758
R780
R757
R775
C754
C755
R779
C779
R776
C753
R772
C759
R770
R768
R778
C765
R784
C767
L751
L755
C769
R756
R755
R753
R754
IC753
C758
IC755
R760
R761
C780
C781
C763
C757
L754
R762
R763
R769
R765
Q752
C772
L753
R755
L756
1-646-127-

LD-63 BOAR


C751
C752
IC761
R751
L752
CN752
11
5
6

D-63 BOARD (COMPONENT SIDE)


R783
C761
IC756
R782
RB752
C778
R777
C760
R774
R767
RB754
R787
Q751
E
C
B
C762
R773
RB751
IC764
R764
R759
R758
IC757
R786
R780
R775
R757
C754
C755
R779
C779
R776
C753
R772
C759
R770
R788
R778
C765
R784
C767
L751
L755
C769
R756
R755
R753
R754
IC753
C758
IC755
R760
R761
C780
C781
C763
C757
C756
L756
L754
R762
R763
R769
R785
Q752
C772
1-646-127-
11
1
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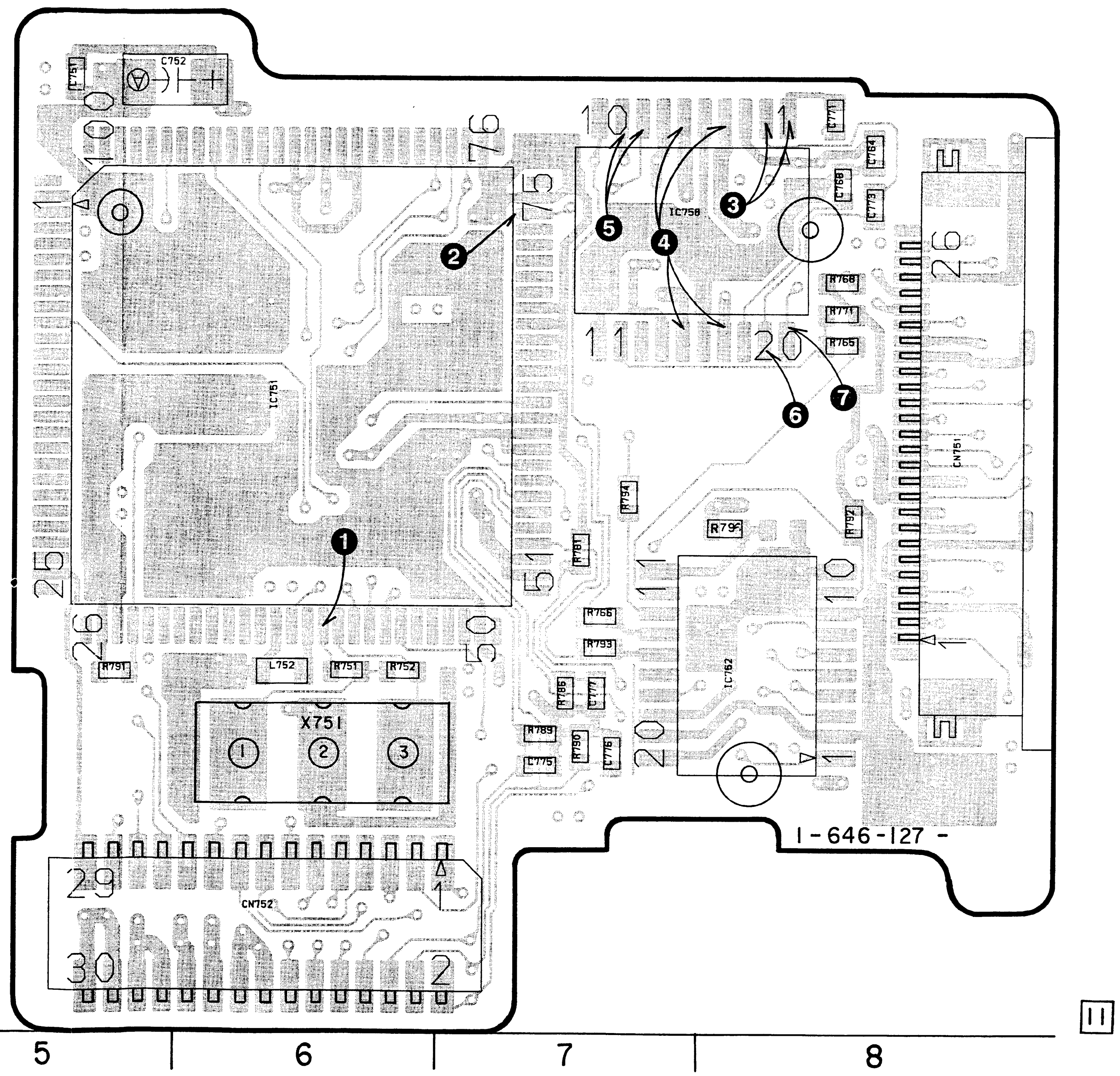
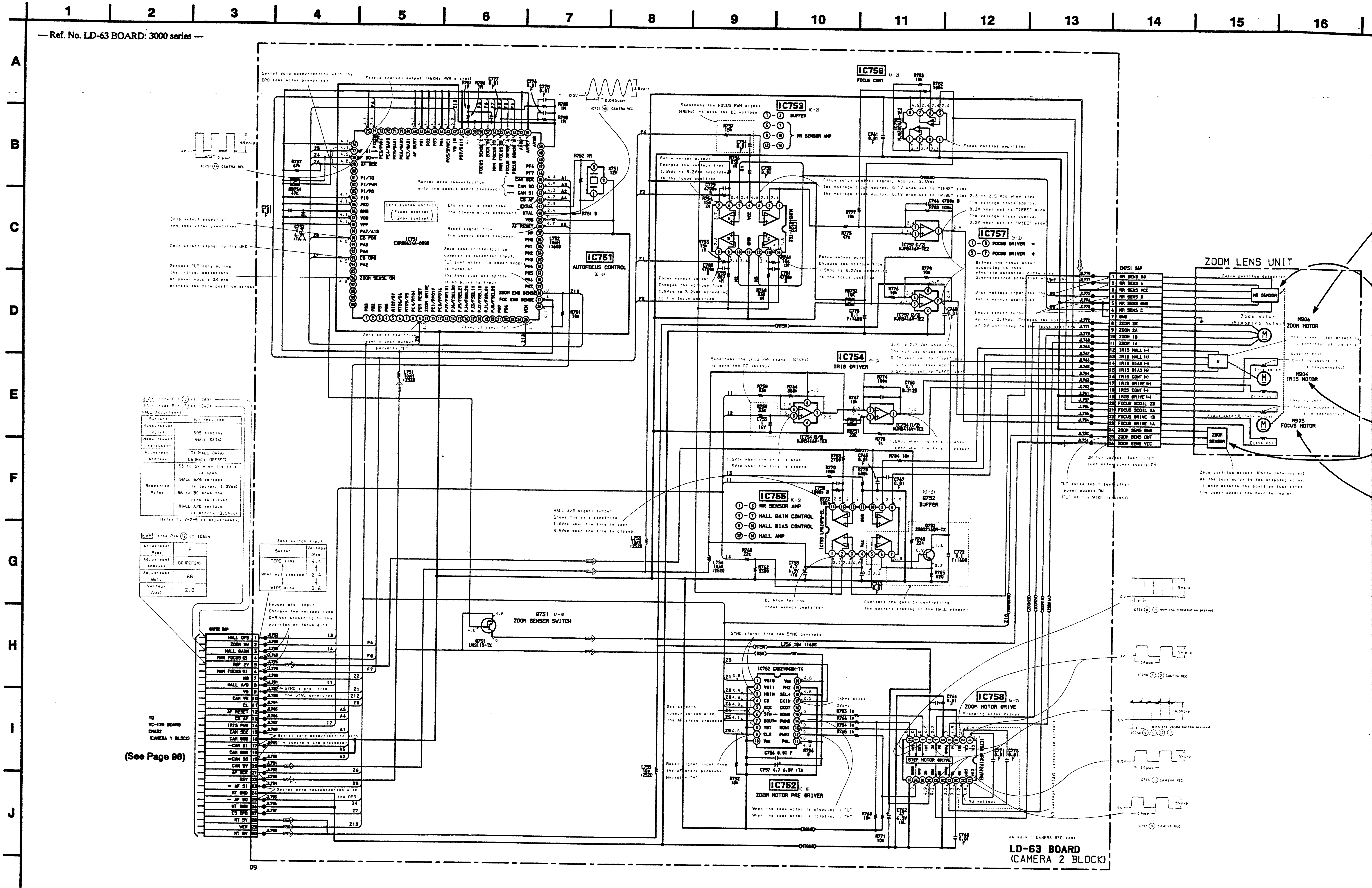
3
4

LD-63 BOARD (CONDUCTOR SIDE)


C751
C752
100
76
75
1
IC751
25
26
50
51
IC758
10
1
11
20
C771
C764
C768
C773
R768
R771
R765
R794
R781
R793
R792
CN751
26
R766
R793
IC762
R791
L752
R751
R752
X751
①
②
③
R786
C777
R789
R790
C775
C776
CN752
29
30
1
2
1-646-127-
11
5
6
7
8

LD-63 (ZOOM LENS UNIT DRIVE) SCHEMATIC DIAGRAM

— Ref. No. LD-63 BOARD: 3000 series —


1
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8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
IC751 CXP80424A-009R
IC751 AUTOFOCUS CONTROL
IC753 BUFFER
MR SENSOR AMP
IC756 FOCUS CONT
IC757 FOCUS DRIVER
IC754 IRIS DRIVER
IC755 MR SENSOR AMP
HALL GAIN CONTROL
HALL BIAS CONTROL
HALL AMP
Q752 BUFFER
Q751 ZOOM SENSER SWITCH
IC752 CXD2104AN-T4
IC752 ZOOM MOTOR PRE DRIVER
IC758 ZOOM MOTOR DRIVE
STEP MOTOR DRIVE
CN751 26P
MR SENS SO
MR SENS A
MR SENS VCC
MR SENS B
MR SENS GND
MR SENS C
GND
ZOOM 2B
ZOOM 2A
ZOOM 1B
ZOOM 1A
IRIS HALL (-)
IRIS HALL (+)
IRIS BIAS (-)
IRIS BIAS (+)
IRIS CONT (+)
IRIS DRIVE (+)
IRIS CONT (-)
IRIS DRIVE (-)
FOCUS SCOIL 2B
FOCUS SCOIL 2A
FOCUS DRIVE 1B
FOCUS DRIVE 1A
ZOOM SENS GND
ZOOM SENS OUT
ZOOM SENS VCC
ZOOM LENS UNIT
Focus position detection
MR SENSOR
Zoom motor (Stepping motor)
M906 ZOOM MOTOR
Hall element for detecting the condition of the iris
Damping coil (Hunting occurs if it disconnects.)
Iris motor
M904 IRIS MOTOR
Drive coil
Focus motor (Linear motor)
M905 FOCUS MOTOR
ZOOM SENSOR
Zoom position detect (Photo interrupter) As the zoom motor is the stepping motor, it only detects the position just after the power supply has been turned on.
ON for approx. 1sec. :"H" just after power supply ON
"L" pulse input just after power supply ON ("L" of the WIDE terminal)
CN752 30P
HALL OFS
ZOOM SW
HALL GAIN
MAN FOCUS (2)
REF 2V
MAN FOCUS (1)
HD
HALL A/D
VD
CAM VD
CL
AF RESET
CS AF
IRIS PWM
CAM SCK
CAM GND
-CAM SI
CAM GND
-CAM SO
CAM 5V
AF SCK
8SV
- AF SI
MT GND
- AF SO
MT GND
CS OPG
MT 5V
VEN
MT 5V
TO VC-129 BOARD CN652 (CAMERA 1 BLOCK)
(See Page 96)
Focus dial input Changes the voltage from 0~5 Vdc according to the position of focus dial
SYNC signal from the SYNC generator
Serial data communication with the camera micro processor
Serial data communication with the OPG
LD-63 BOARD (CAMERA 2 BLOCK)
09

EVR from Pin ⑥ of IC654
EVR from Pin ⑦ of IC654

HALL Adjustment

Subject	Not required
Measurement Point Measurement Instrument	OSD display (HALL DATA)
Adjustment Address	DA (HALL DATA) DB (HALL OFFSET)
Specified Value	33 to 37 when the iris is open (HALL A/D voltage is approx. 1.0Vdc) B8 to BC when the iris is closed (HALL A/D voltage is approx. 3.5Vdc)

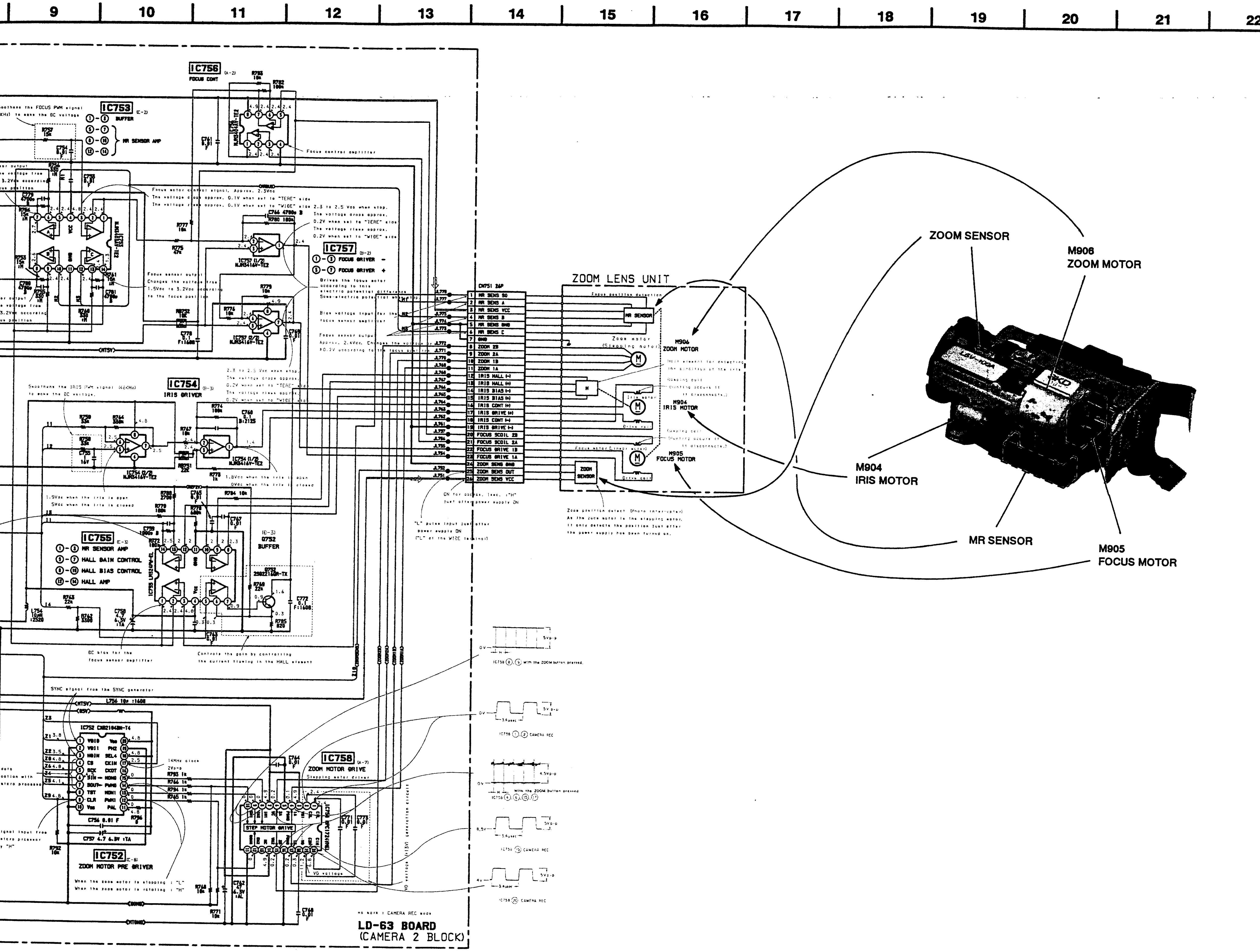
Refer to 7-2-9 in adjustments.

EVR from Pin ⑫ of IC654

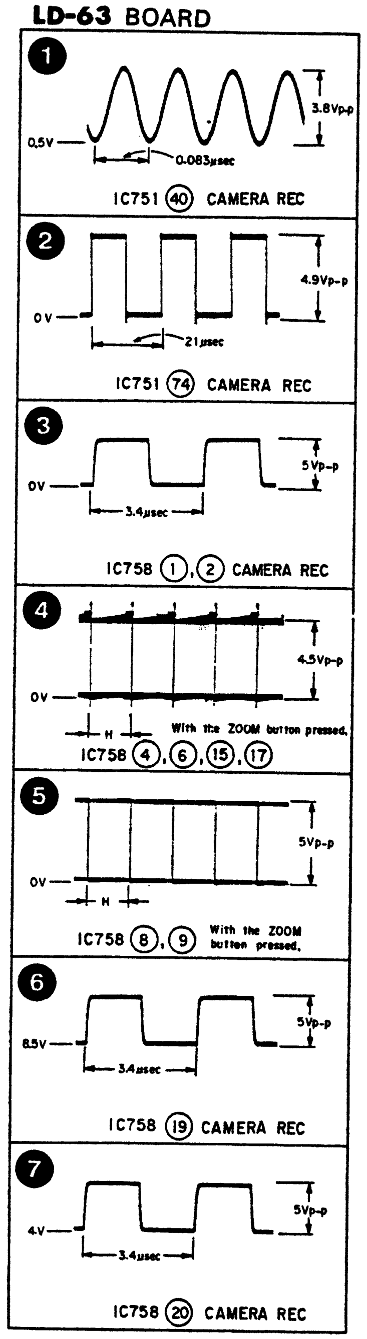
Adjustment Page	F
Adjustment Address	00 (REF2V)
Adjustment Data	68
Voltage (Vdc)	2.0

Zoom switch input

Switch	Voltage (Vdc)
TERE side	4.4
↑	↑
When not pressed	2.4
↓	↓
WIDE side	0.6

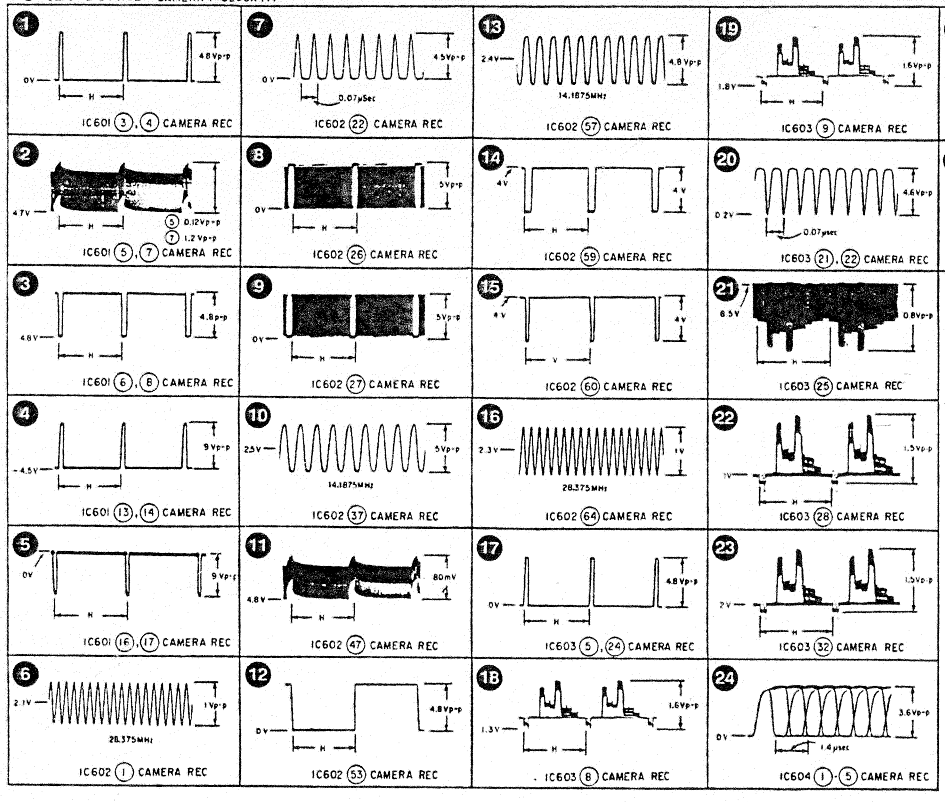


9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
IC756 FOCUS CONT
IC753 BUFFER
MR SENSOR AMP
Focus control amplifier
IC757 FOCUS DRIVER
IC754 IRIS DRIVER
IC755 MR SENSOR AMP
HALL GAIN CONTROL
HALL BIAS CONTROL
HALL AMP
Q752 BUFFER
IC752 CXD2184BM-T4
IC752 ZOOM MOTOR PRE DRIVER
IC758 ZOOM MOTOR DRIVE
Stepping motor driver
STEP MOTOR DRIVE
CN751 26P
1 MR SENS SO
2 MR SENS A
3 MR SENS VCC
4 MR SENS B
5 MR SENS GND
6 MR SENS C
7 GND
8 ZOOM 2B
9 ZOOM 2A
10 ZOOM 1B
11 ZOOM 1A
12 IRIS HALL (−)
13 IRIS HALL (+)
14 IRIS BIAS (−)
15 IRIS BIAS (+)
16 IRIS CONT (+)
17 IRIS DRIVE (+)
18 IRIS CONT (−)
19 IRIS DRIVE (−)
20 FOCUS SCOIL 2B
21 FOCUS SCOIL 2A
22 FOCUS DRIVE 1B
23 FOCUS DRIVE 1A
24 ZOOM SENS GND
25 ZOOM SENS OUT
26 ZOOM SENS VCC
ON for approx. 1sec. :"H" just after power supply ON
"L" pulse input just after power supply ON ("L" at the WIDE terminal)
ZOOM LENS UNIT
MR SENSOR
M906 ZOOM MOTOR
M904 IRIS MOTOR
M905 FOCUS MOTOR
ZOOM SENSOR
ZOOM SENSOR
M906 ZOOM MOTOR
M904 IRIS MOTOR
MR SENSOR
M905 FOCUS MOTOR
LD-63 BOARD (CAMERA 2 BLOCK)

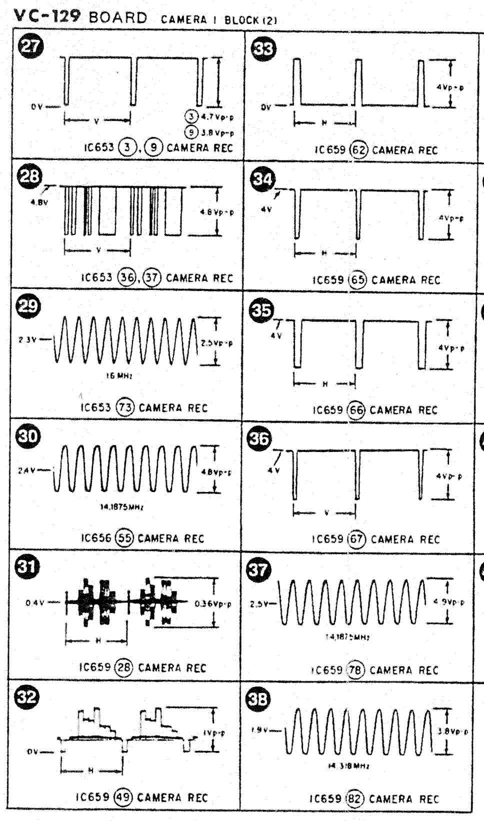


LD-63 BOARD
①
3.8Vp-p
0.5V
0.083μsec
IC751 (40) CAMERA REC
②
4.9Vp-p
0V
21μsec
IC751 (74) CAMERA REC
③
5Vp-p
0V
3.4μsec
IC758 (1),(2) CAMERA REC
④
4.5Vp-p
0V
H
With the ZOOM button pressed.
IC758 (4),(6),(15),(17)
⑤
5Vp-p
0V
H
IC758 (8),(9) With the ZOOM button pressed.
⑥
5Vp-p
8.5V
3.4μsec
IC758 (19) CAMERA REC
⑦
5Vp-p
4V
3.4μsec
IC758 (20) CAMERA REC

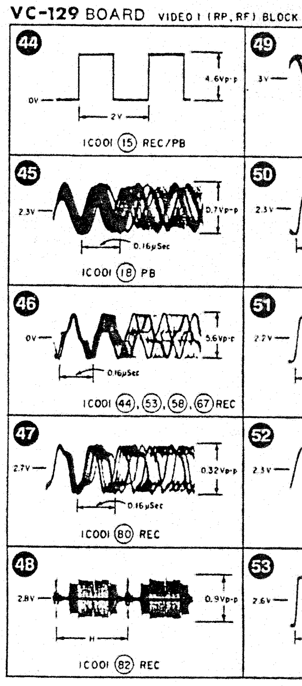
VC-129 BOARD CAMERA I BLOCK (1)



VC-129 BOARD CAMERA I BLOCK (2)



VC-129 BOARD VIDEO I (RP, RF) BLOCK

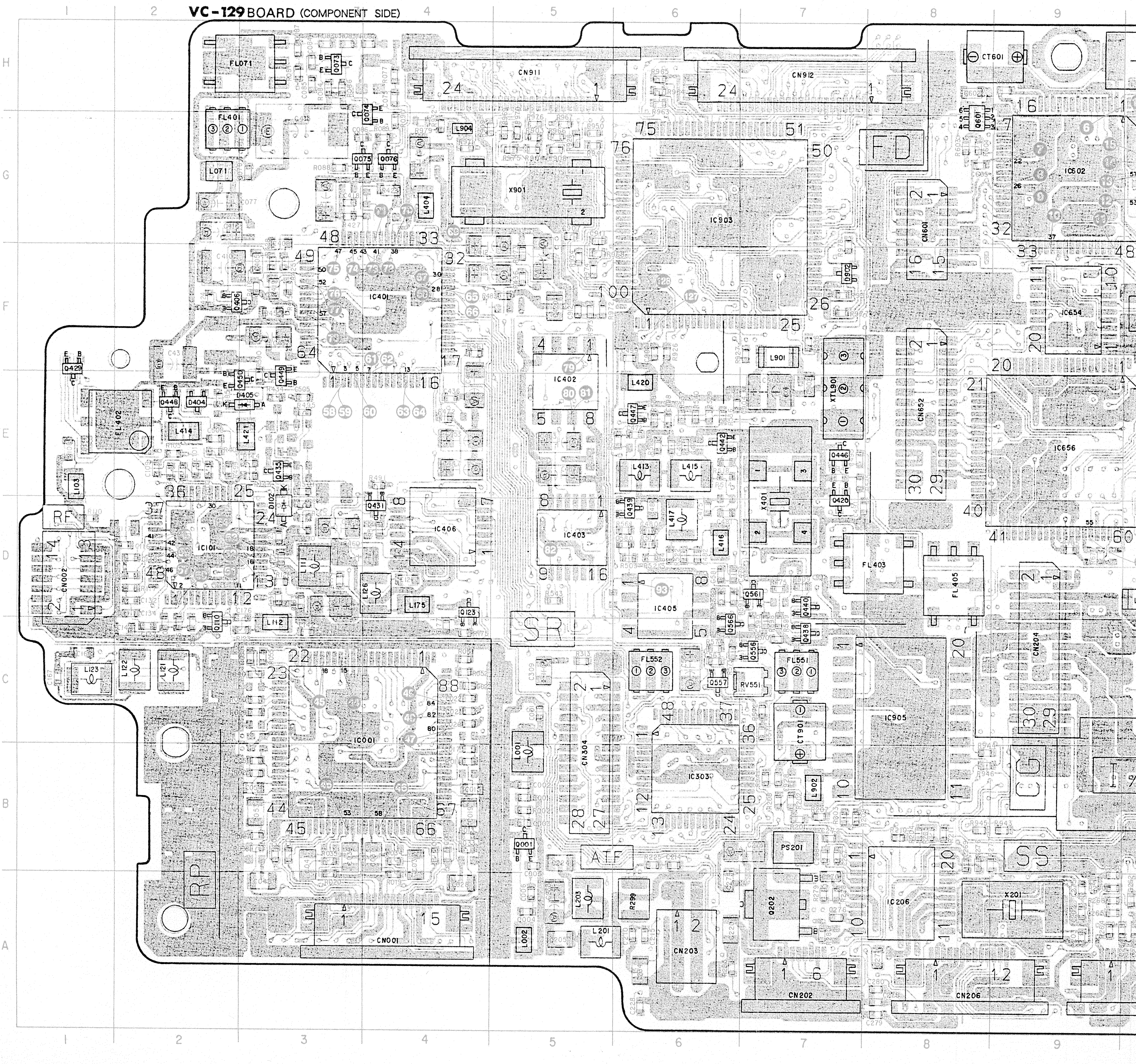


VC-129 (CAMERA, VIDEO, SERVO/SYSTEM CONTROL), DB-10 (5.3V REG) PRINTED WIRING BOARDS

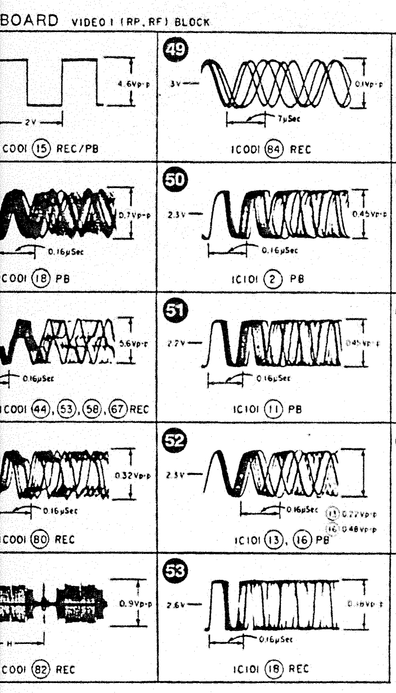
A SIDE

— Ref. No. VC-129 BOARD: 2000 series, DB-10 BOARD: 4000 series —

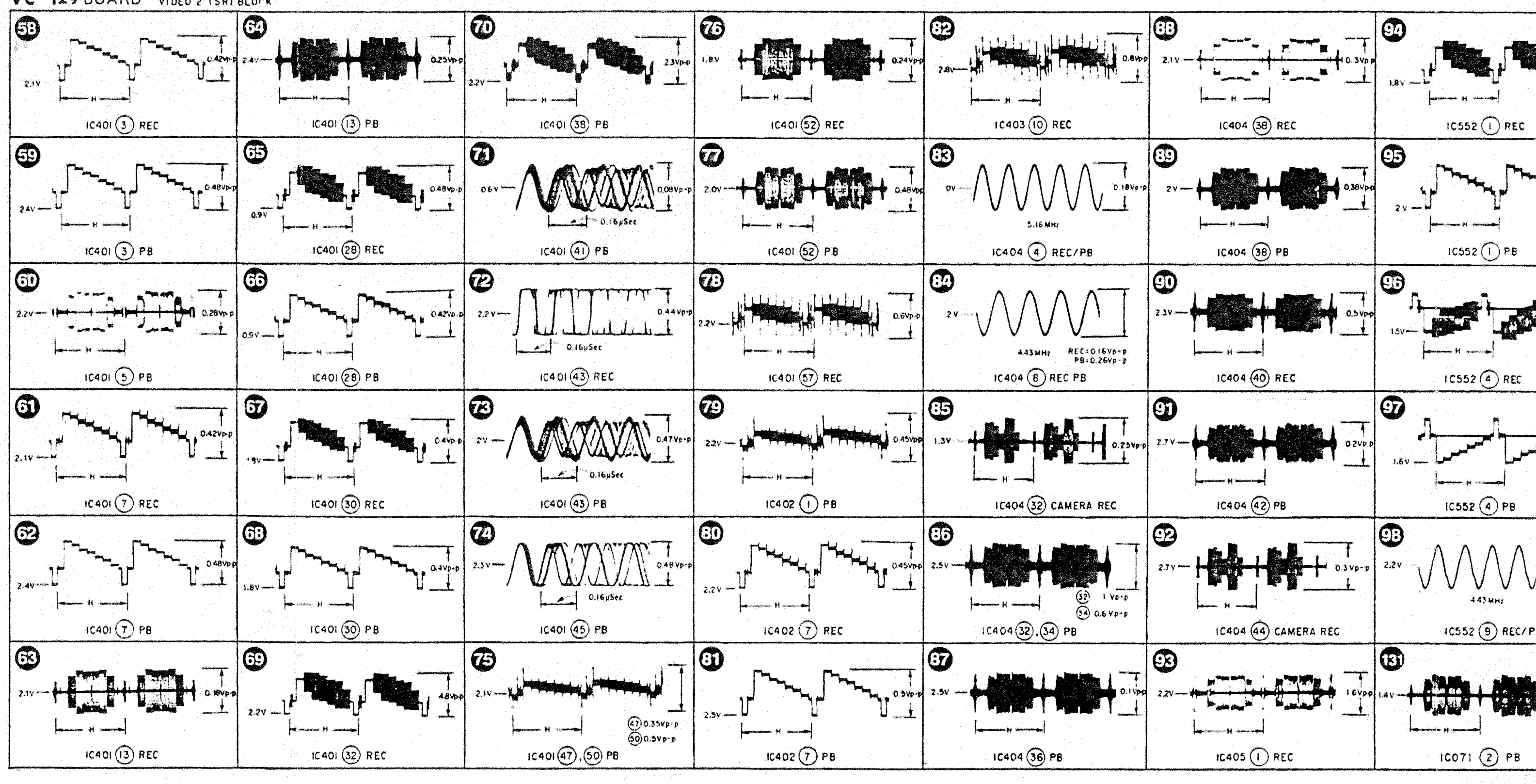
VC-129 BOARD (COMPONENT SIDE)


CN911
CN912
FL071
FL401
L071
X901
IC903
FD
IC602
CN601
IC401
IC402
L901
XTL901
CN652
IC654
IC656
FL902
L414
L421
IC101
CN002
RF
IC406
IC403
X401
FL403
FL405
IC405
SR
IC001
CN304
IC303
CT901
IC905
CN204
CG
RP
CN001
ATF
PS201
Q202
IC206
X201
SS
CN203
CN202
CN206
CT601

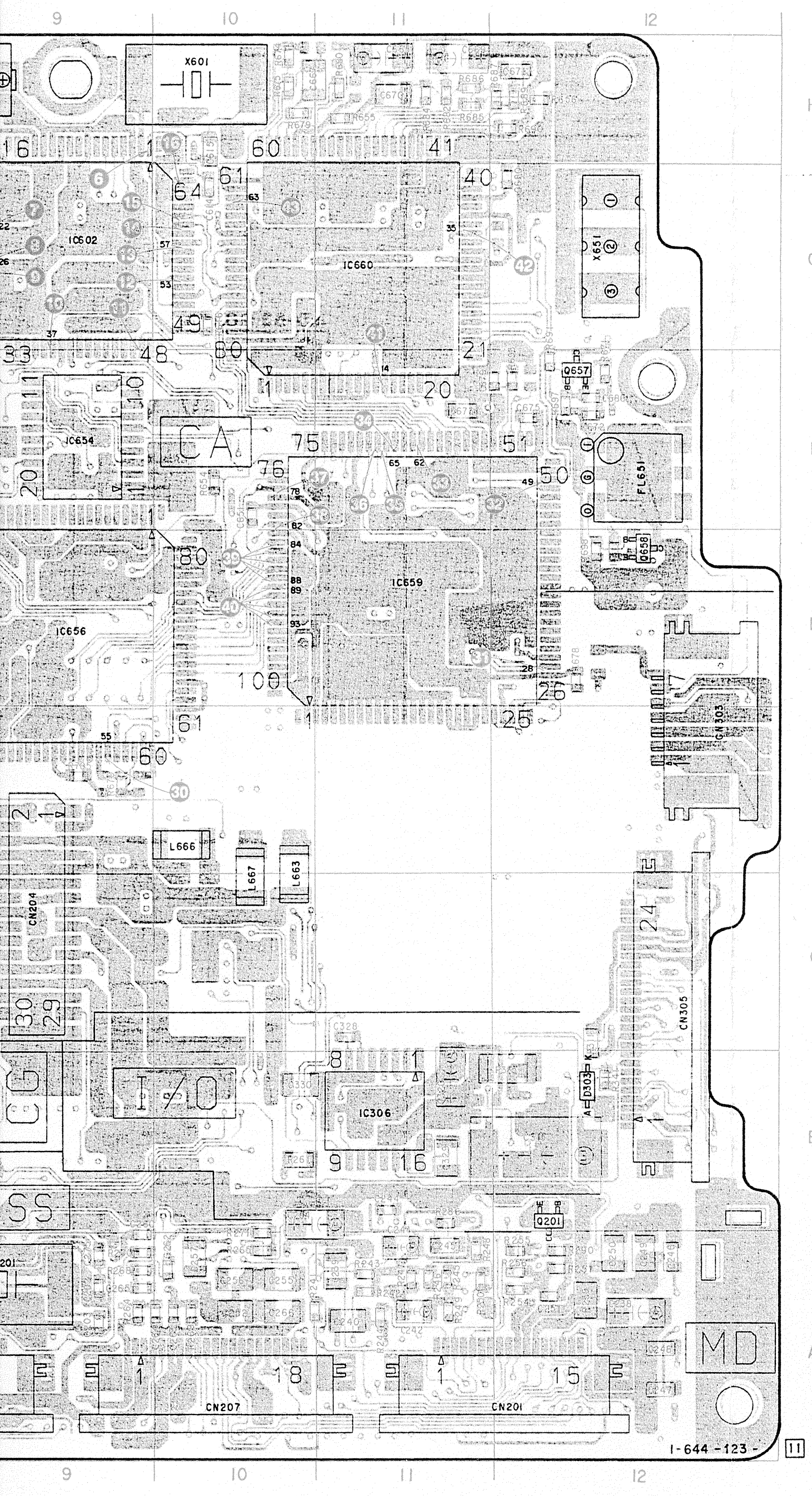
BOARD VIDEO 1 (RP, RF) BLOCK



VC-129 BOARD VIDEO 2 (SR) BLOCK

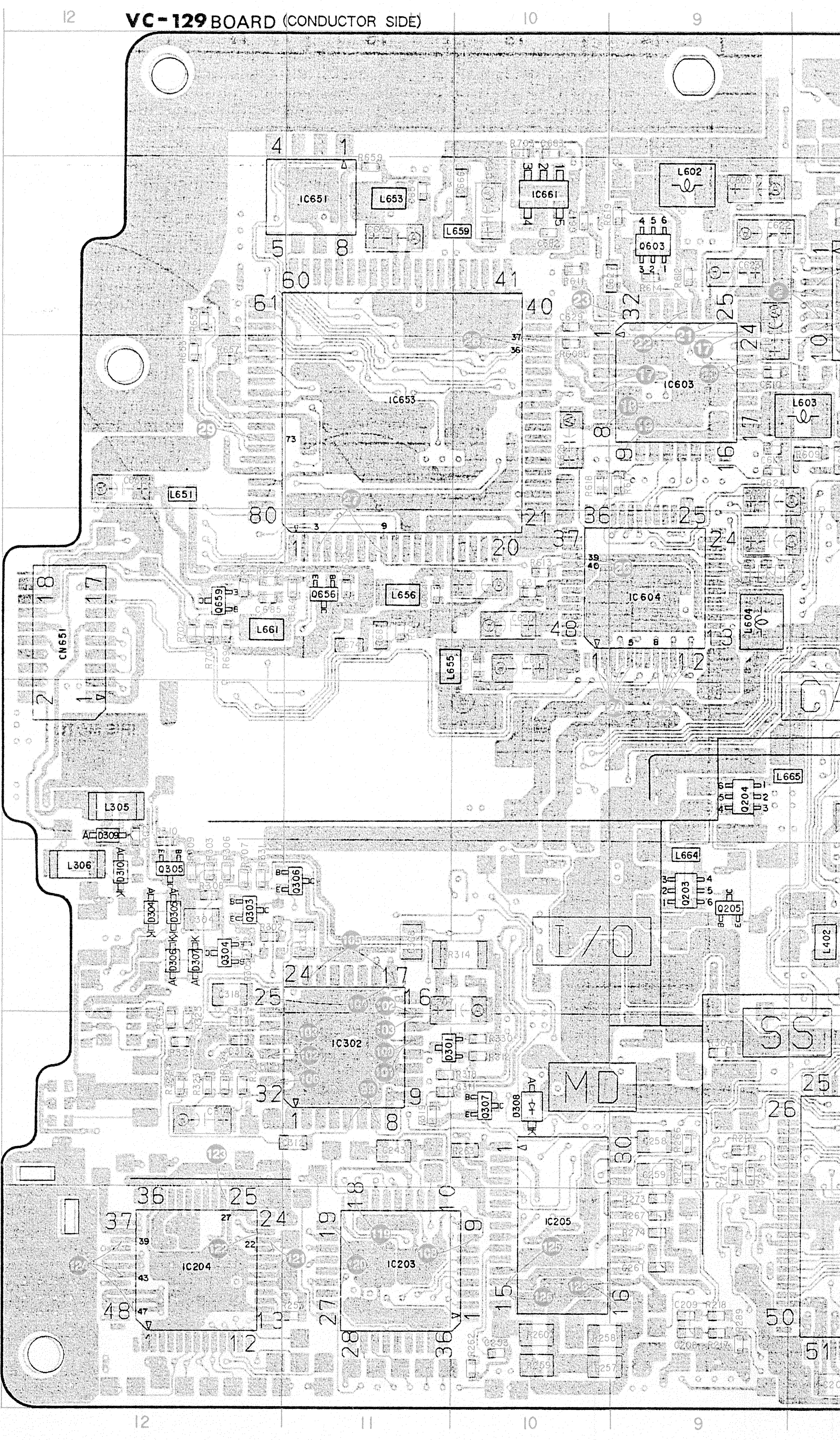


B SIDE

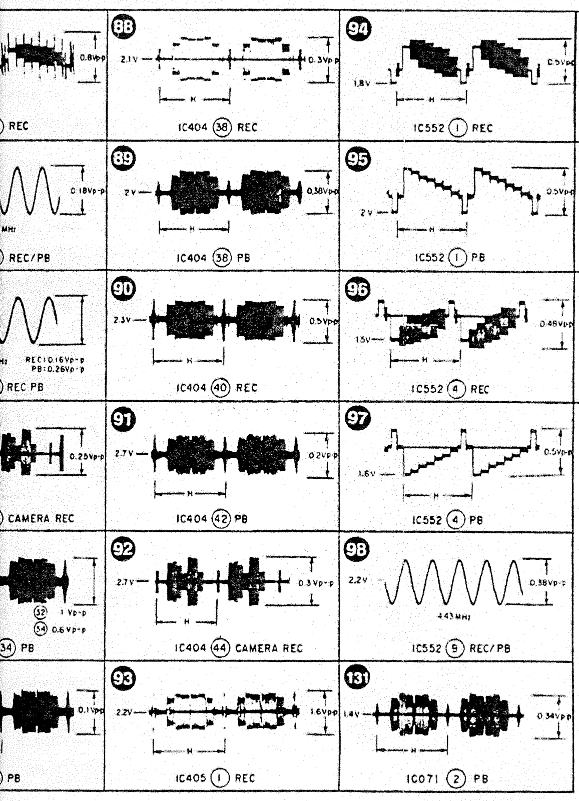


IC602
IC660
IC654
IC659
IC656
IC306
CN207
CN201
CN305
X601
X651
FL651
L666
L667
L663
CA
I/O
SS
MD
1-644-123-
11

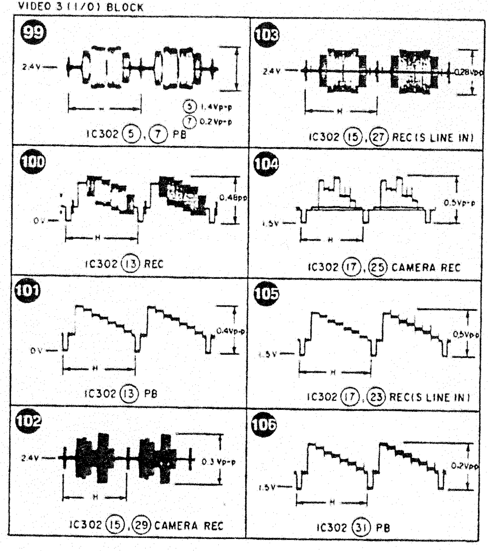
VC-129 BOARD (CONDUCTOR SIDE)



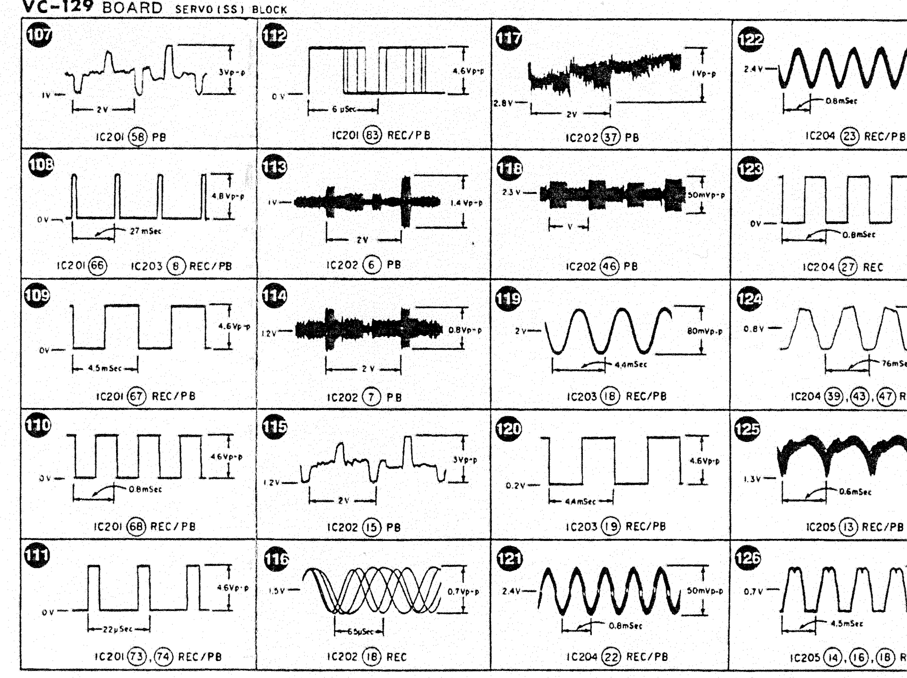
IC651
IC661
IC653
IC603
IC604
IC302
IC204
IC203
IC205
CN651
L651
L653
L655
L656
L659
L661
L602
L603
L604
L305
L306
L664
L665
I/O
MD
SS



VC-129 BOARD
VIDEO 3 (I/O) BLOCK



VC-129 BOARD SERVO (SS) BLOCK

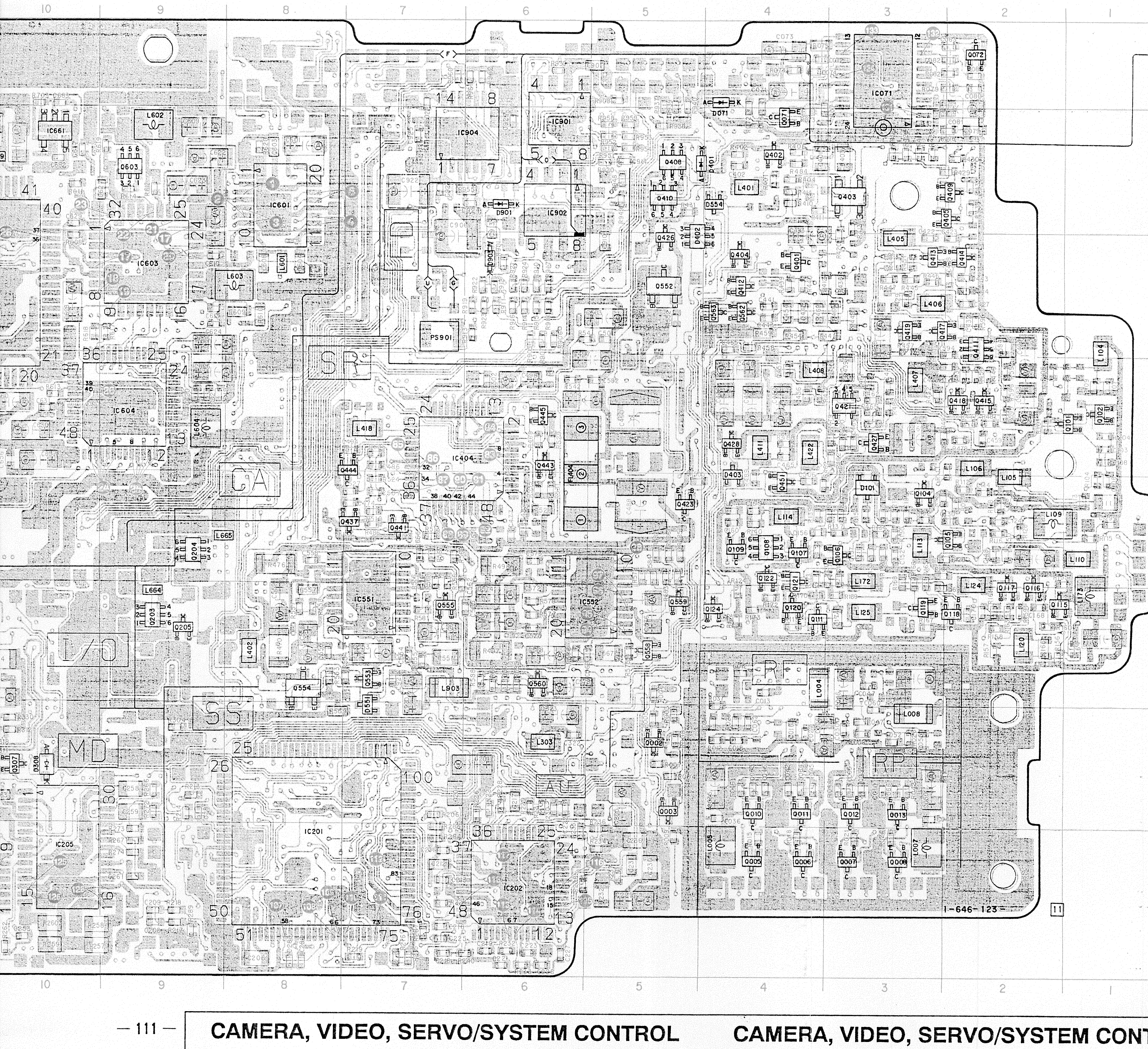


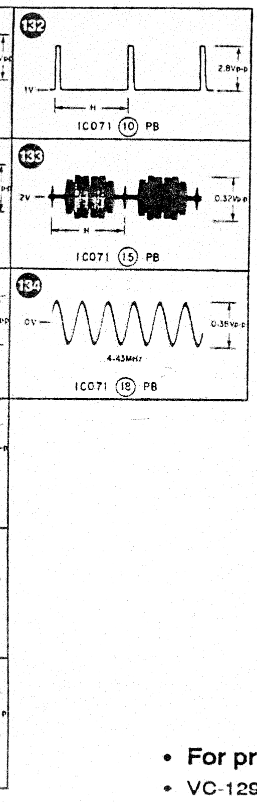
- **For printed wiring boards**
- VC-129 *board* is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:

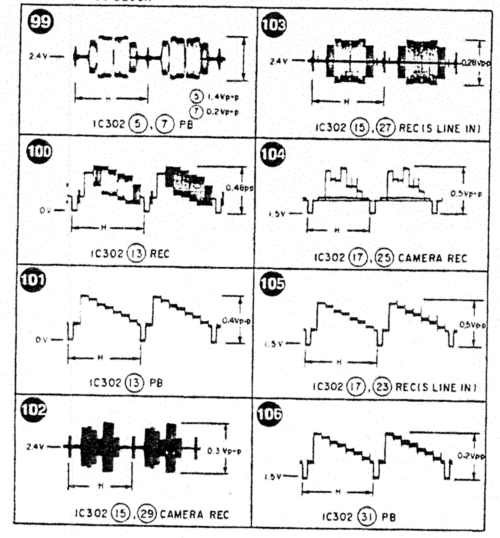
Pattern face side: (Conductor Side) — Parts on the pattern face side seen from the pattern face are indicated.

Parts face side: (Component side) — Parts on the parts face side seen from the parts face are indicated.

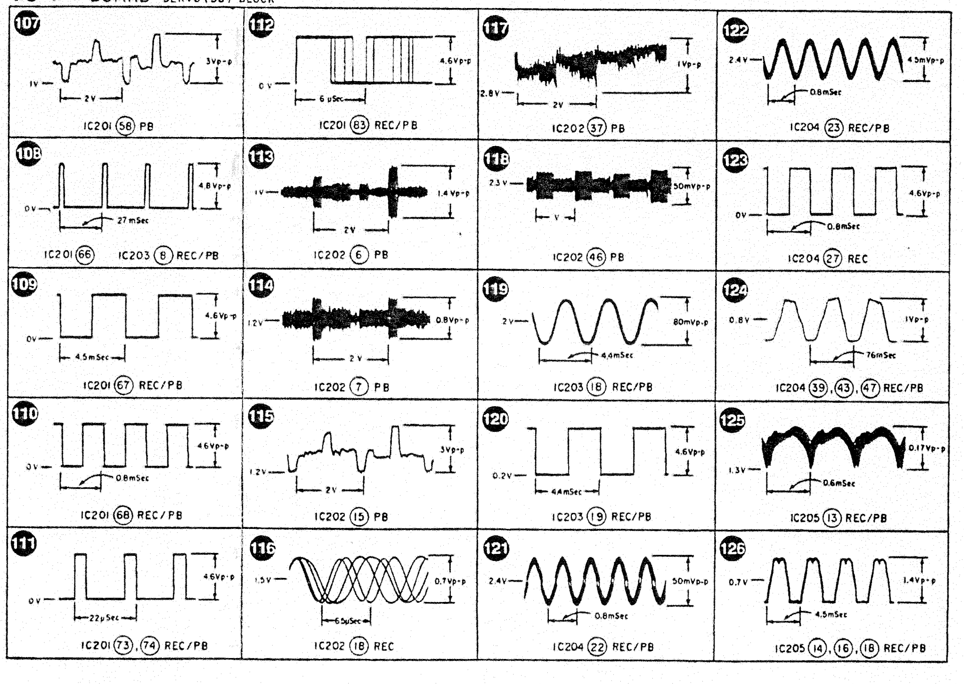

10
9
8
7
6
5
4
3
2
1
IC661
L602
Q603
IC601
IC603
L603
L601
IC604
L604
IC904
IC901
IC902
D901
PS901
IC071
D071
Q071
Q072
Q408
Q410
D401
L401
Q402
Q403
L405
L406
L408
SR
CA
I/O
SS
MD
RF
RP
ATF
IC404
L418
IC551
IC552
L664
L665
L402
L903
L303
IC201
IC202
IC205
D101
L104
L105
L106
L109
L110
L111
L114
L124
L125
L172
L120
L004
L005
L007
L008
1-646-123-
11



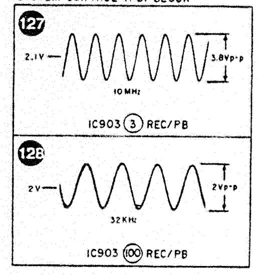
VC-129 BOARD
VIDEO 3 (I/O) BLOCK



VC-129 BOARD SERVO (SS) BLOCK



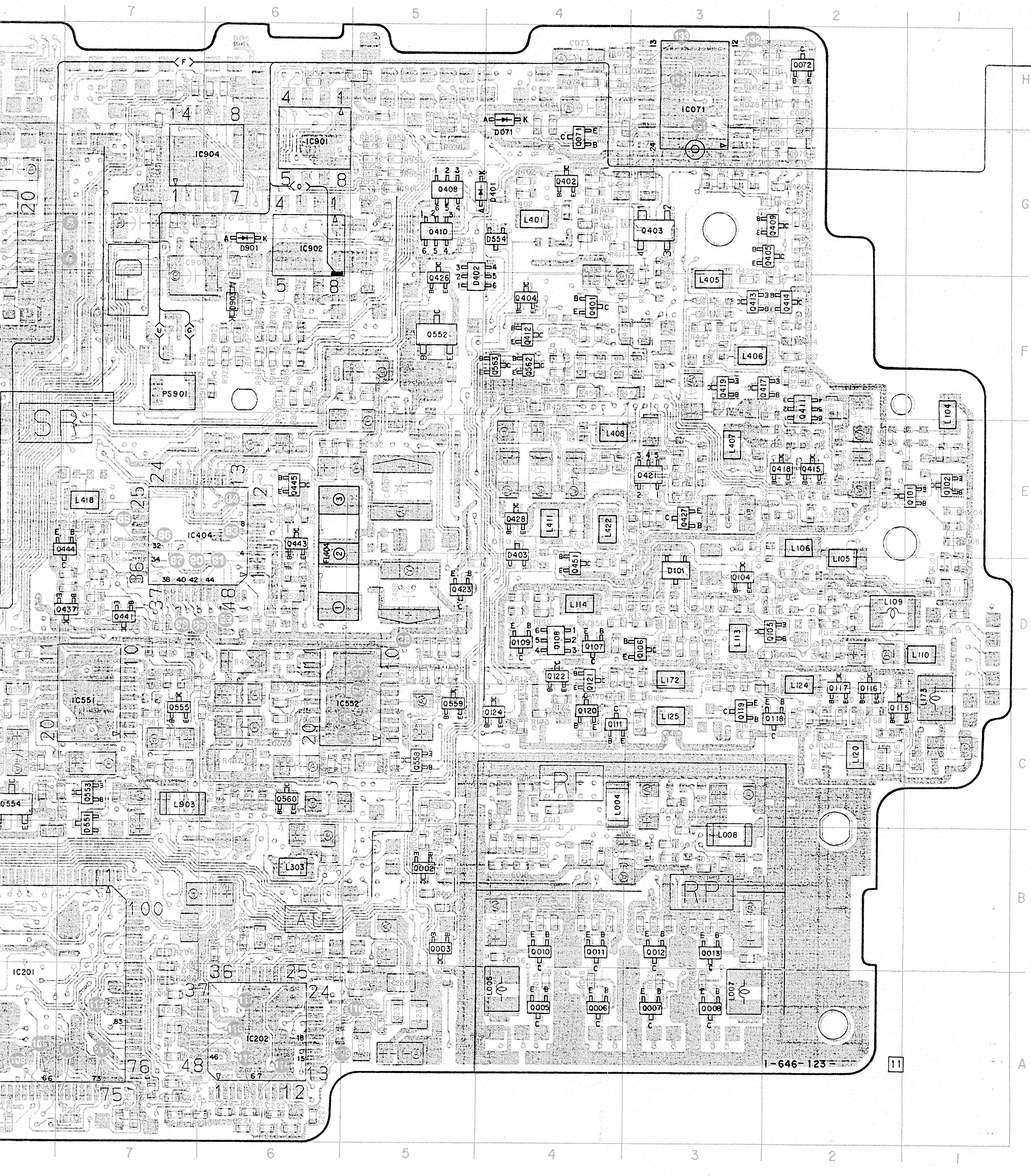
VC-129 BOARD
SYSTEM CONTROL (FD) BLOCK



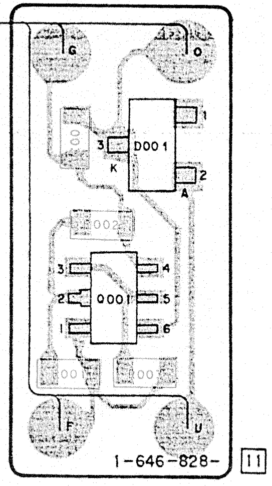
- **For printed wiring boards**
- VC-129 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.


IC904
IC901
IC902
IC071
IC404
IC551
IC552
IC201
IC202
PS901
1-646-123-
11

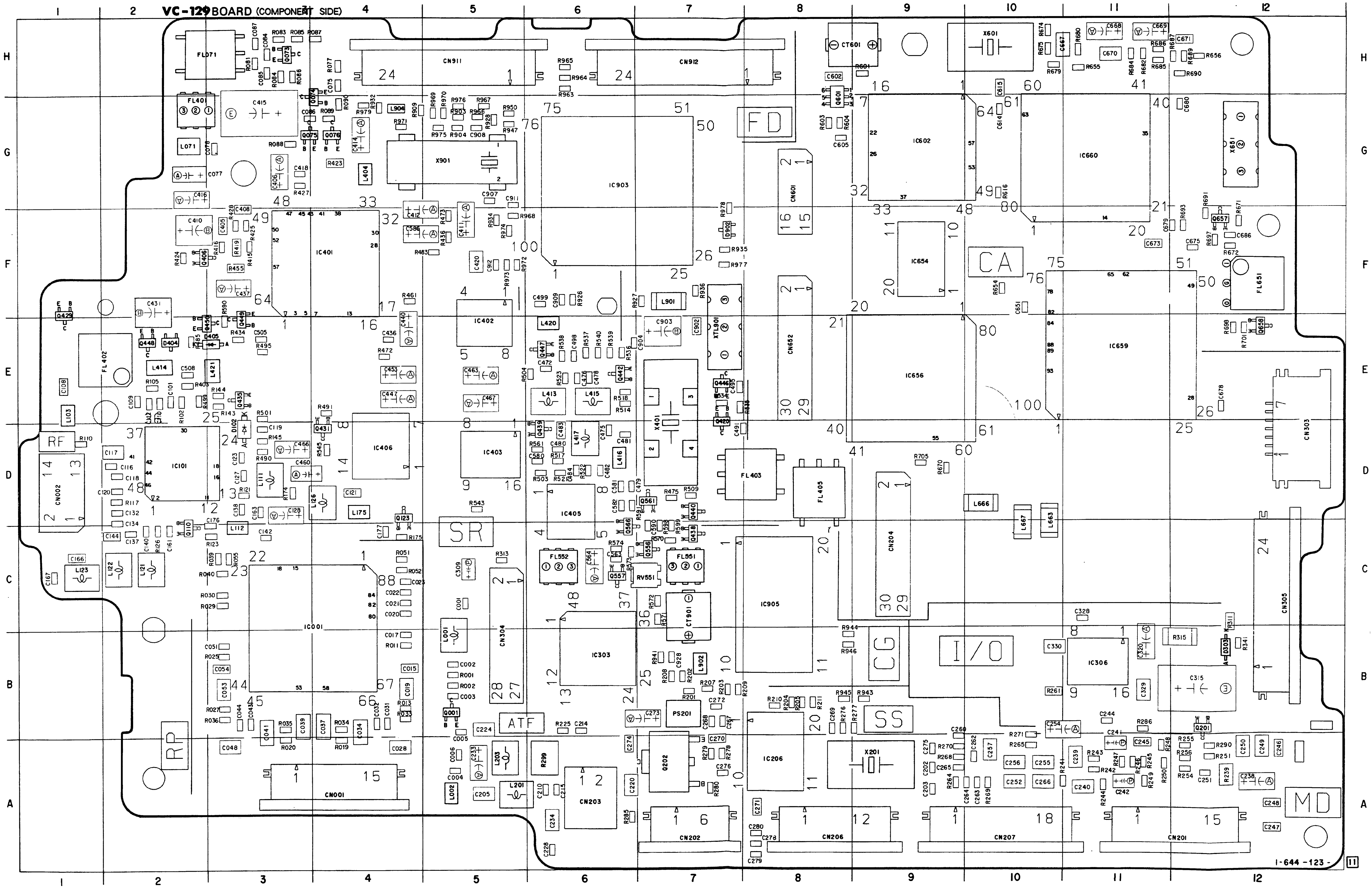
DB-10 BOARD


D001
Q001
1-646-828-
11

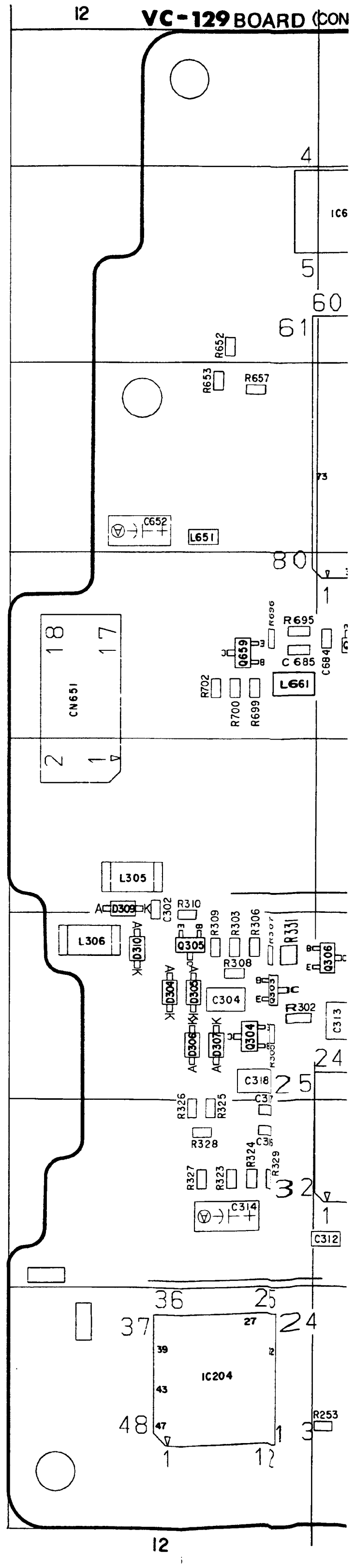
VC-129 (CAMERA, VIDEO, SERVO/SYSTEM CONTROL), DB-10 (5.3V REG) PRINTED WIRING BOARDS

— Ref. No. VC-129 BOARD: 2000 series, DB-10 BOARD: 4000 series —

A SIDE

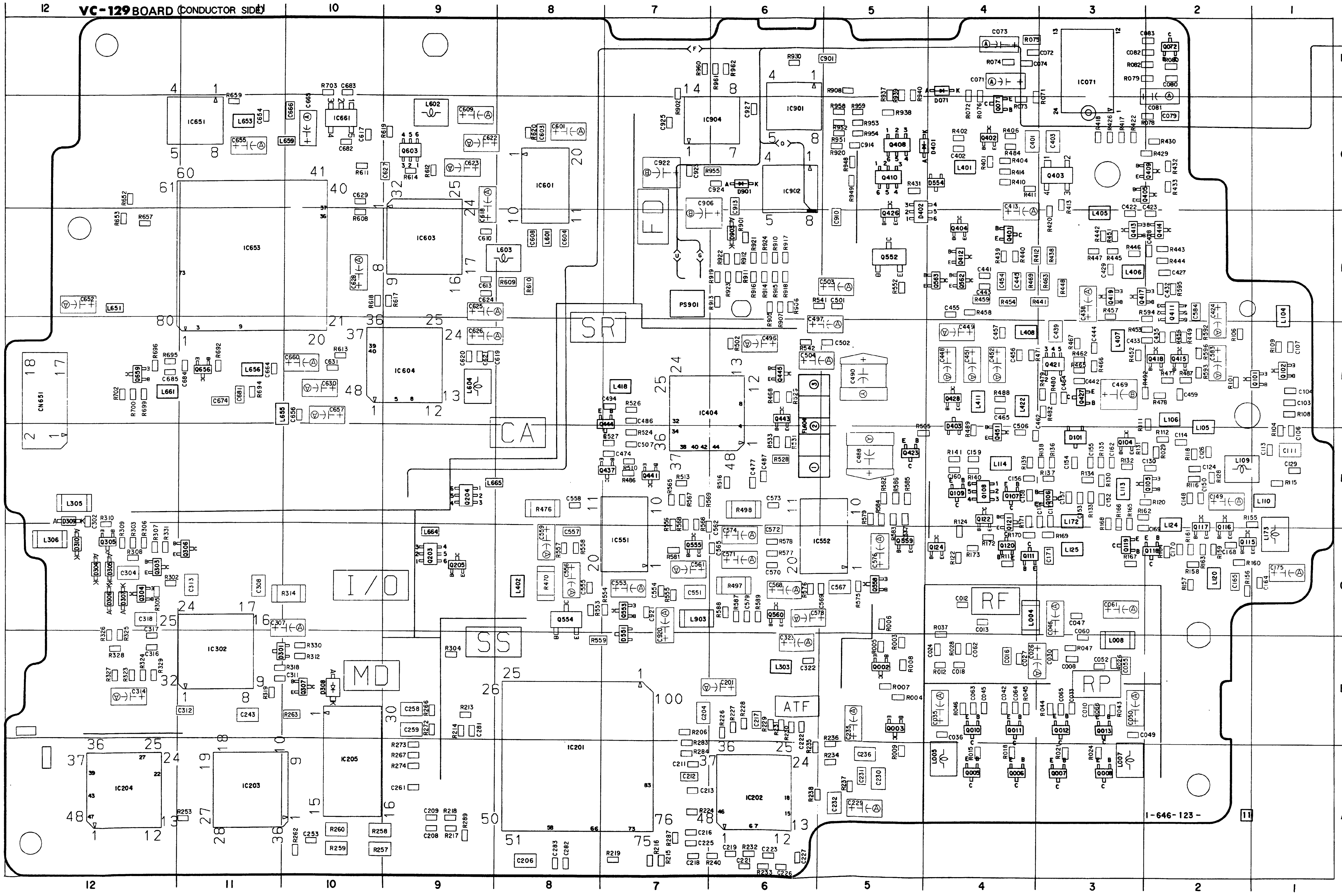

VC-129 BOARD (COMPONENT SIDE)
FD
CA
SR
ATF
CG
I/O
SS
MD
RF
RP
IC001
IC101
IC206
IC303
IC306
IC401
IC402
IC403
IC405
IC406
IC602
IC654
IC656
IC659
IC660
IC903
IC905
CN001
CN002
CN201
CN202
CN203
CN204
CN206
CN207
CN303
CN304
CN305
CN601
CN652
CN911
CN912
X201
X401
X601
X901
1-644-123-11

B SIDE

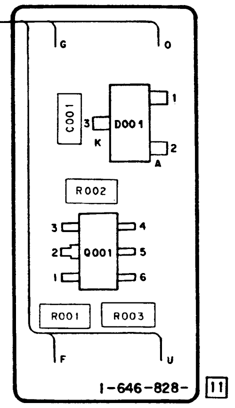

VC-129 BOARD (CON
IC204
CN651
L305
L306
L651
L661

B SIDE

VC-129 BOARD (CONDUCTOR SIDE)


12
11
10
9
8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
IC651
IC661
IC653
IC601
IC603
IC604
IC904
IC901
IC902
IC071
IC404
IC551
IC552
IC302
IC201
IC202
IC203
IC204
IC205
CN651
PS901
SR
CA
I/O
SS
MD
FD
ATF
RF
RP
1-646-123-11

DB-10 BOARD


C001
D001
R002
Q001
R001
R003
1-646-828-11

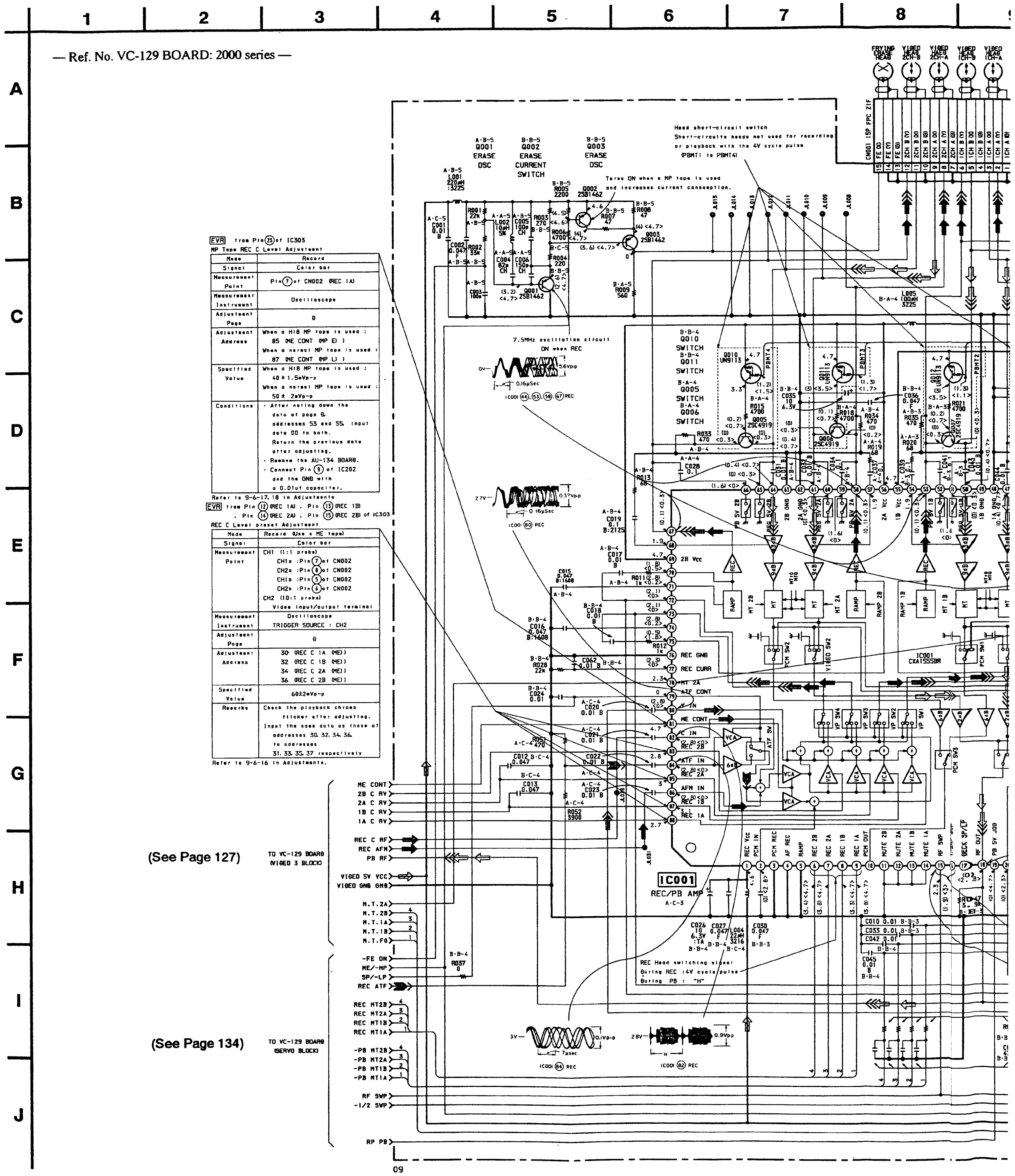
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡➡»	➡
PB	⇨	⇨»	⇨⇨»	⇨

VC-129 (VIDEO 1 (RP, RF)) SCHEMATIC DIAGRAM

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. VC-129 BOARD: 2000 series —


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
FLYING ERASE HEAD
VIDEO HEAD 2CH-B
VIDEO HEAD 2CH-A
VIDEO HEAD 1CH-B
VIDEO HEAD 1CH-A
CN001 15P FPC ZIF
A-B-5 Q001 ERASE OSC
B-B-5 Q002 ERASE CURRENT SWITCH
B-B-5 Q003 ERASE OSC
Head short-circuit switch
Turns ON when a MP tape is used and increases current consumption.
B-B-4 Q010 SWITCH
B-B-4 Q011 SWITCH
B-A-4 Q005 SWITCH
B-A-4 Q006 SWITCH
7.5MHz oscillation circuit ON when REC
IC001 REC/PB AMP
CXA1553BR
REC Head switching signal
ME CONT
2B C RV
2A C RV
1B C RV
1A C RV
REC C RF
REC AFM
PB RF
VIDEO 5V VCC
VIDEO GND GND
M.T.2A
M.T.2B
M.T.1A
M.T.1B
M.T.FO
-FE ON
ME/-MP
SP/-LP
REC ATF
REC MT2B
REC MT2A
REC MT1B
REC MT1A
-PB MT2B
-PB MT2A
-PB MT1B
-PB MT1A
RF SWP
-1/2 SWP
RP PB
TO VC-129 BOARD (VIDEO 3 BLOCK)
TO VC-129 BOARD (SERVO BLOCK)
09

(See Page 127)

(See Page 134)

EVR from Pin ㉓ of IC303

MP Tape REC C Level Adjustment

Mode	Record
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1A)
Measurement Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	When a HI8 MP tape is used : 85 (ME CONT (MP E)) When a normal MP tape is used : 87 (ME CONT (MP L))
Specified Value	When a HI8 MP tape is used : 40 ± 1.5mVp-p When a normal MP tape is used : 50 ± 2mVp-p
Conditions	· After noting down the data of page 0, addresses 53 and 55, input data 00 to both. Return the previous data after adjusting. · Remove the AU-134 BOARD. · Connect Pin ⑨ of IC202 and the GND with a 0.01uf capacitor.

Refer to 9-6-17, 18 in Adjustments

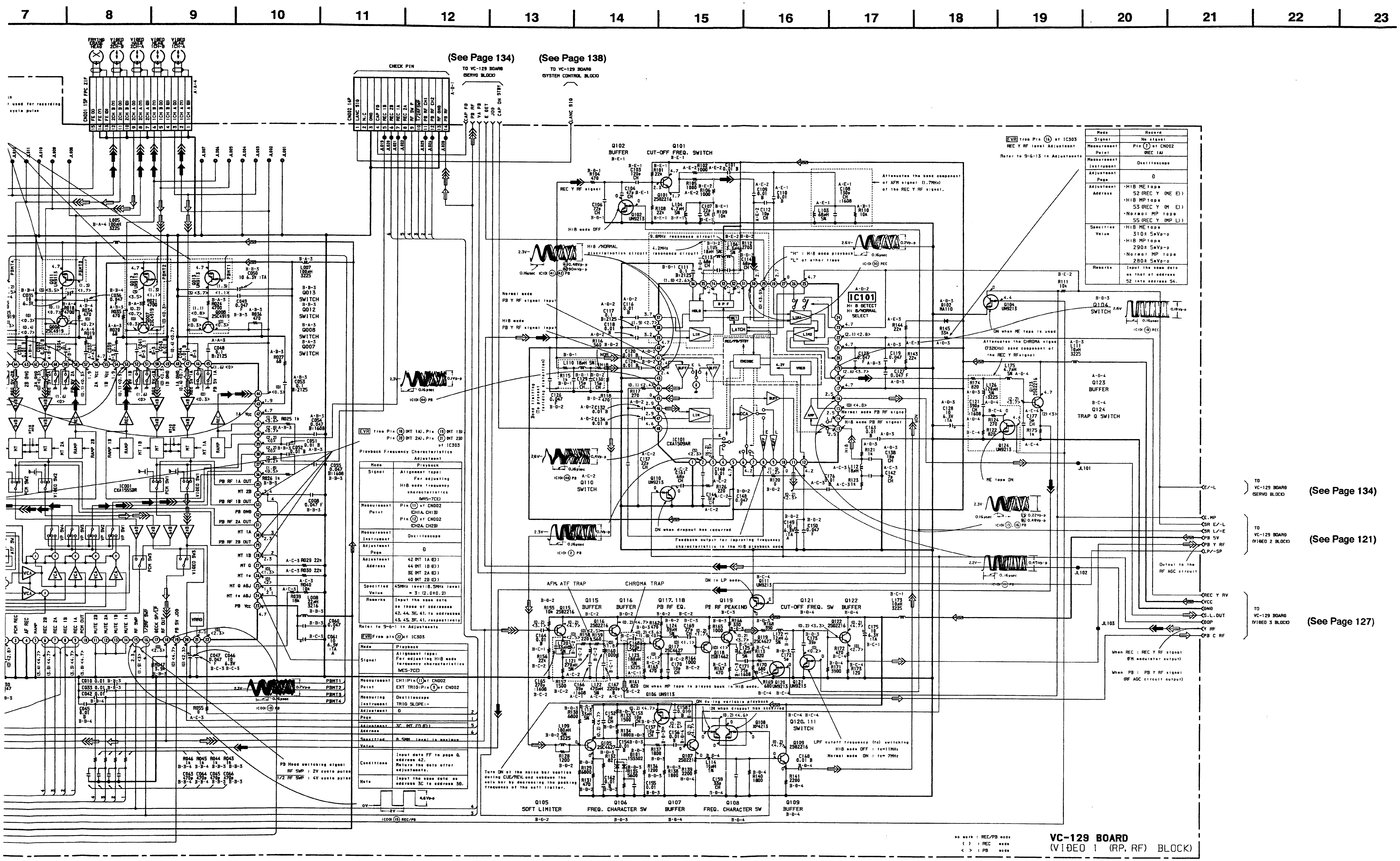
EVR from Pin ⑫ (REC 1A), Pin ⑬ (REC 1B), Pin ⑭ (REC 2A), Pin ⑮ (REC 2B) of IC303

REC C Level preset Adjustment

Mode	Record (Use a ME tape)
Signal	Color bar
Measurement Point	CH1 (1:1 probe) CH1a :Pin ⑦ of CN002 CH2a :Pin ⑧ of CN002 CH1b :Pin ⑤ of CN002 CH2b :Pin ⑥ of CN002 CH2 (10:1 probe) Video input/output terminal
Measurement Instrument	Oscilloscope TRIGGER SOURCE : CH2
Adjustment Page	0
Adjustment Address	30 (REC C 1A (ME)) 32 (REC C 1B (ME)) 34 (REC C 2A (ME)) 36 (REC C 2B (ME))
Specified Value	60±2mVp-p
Remarks	Check the playback chroma flicker after adjusting. Input the same data as those of addresses 30, 32, 34, 36, to addresses 31, 33, 35, 37 respectively

Refer to 9-6-16 in Adjustments.

the VC-129 board.


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
FLYING ERASE HEAD
VIDEO HEAD 2CH-B
VIDEO HEAD 2CH-A
VIDEO HEAD 1CH-B
VIDEO HEAD 1CH-A
CN001 15P FPC ZIF
CHECK PIN
CN002 14P
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
Q102 BUFFER
Q101 CUT-OFF FREQ. SWITCH
Q013 SWITCH
Q012 SWITCH
Q008 SWITCH
Q007 SWITCH
IC001 CXA1555BR
IC101 CXA1509AR
IC101 Hi 8 DETECT Hi 8/NORMAL SELECT
Q110 SWITCH
Q104 SWITCH
Q123 BUFFER
Q124 TRAP Q SWITCH
Hi8 /NORMAL discrimination circuit
9.8MHz resonance circuit
4.2MHz resonance circuit
"H" : Hi8 mode playback
"L" : at other times
Normal mode PB Y RF signal input
Hi8 mode PB Y RF signal input
ON when ME tape is used
ON when dropout has occurred
Feedback output for improving frequency characteristics in the Hi8 playback mode
Attenuates the base component of AFM signal (1.7MHz) of the REC Y RF signal.
Attenuates the CHROMA signal (732KHz) base component of the REC Y RF signal
ON in LP mode
AFM, ATF TRAP
CHROMA TRAP
Q115 BUFFER
Q116 BUFFER
Q117, 118 PB RF EQ.
Q119 PB RF PEAKING
Q121 CUT-OFF FREQ. SW
Q122 BUFFER
Q120, 111 SWITCH
Q105 SOFT LIMITER
Q106 FREQ. CHARACTER SW
Q107 BUFFER
Q108 FREQ. CHARACTER SW
Q109 BUFFER
ON during variable playback
ON when dropout has occurred
LPF cutoff frequency (fc) switching
Hi8 mode OFF : fc=11MHz
Normal mode ON : fc= 7MHz
Turn ON at the noise bar section during CUE/REV, and reduces the noise bar by decreasing the peaking frequency of the soft limiter.
PB Head switching signal
RF SWP : 2V cycle pulse
1/2 RF SWP : 4V cycle pulse
When REC : REC Y RF signal (FM modulator output)
When PB : PB Y RF signal (RF AGC circuit output)
Output to the RF AGC circuit
TO VC-129 BOARD (SERVO BLOCK)
(See Page 134)
TO VC-129 BOARD (VIDEO 2 BLOCK)
(See Page 121)
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 127)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
VC-129 BOARD
(VIDEO 1 (RP, RF) BLOCK)

EVR from Pin ⑯ of IC303
REC Y RF level Adjustment

Refer to 9-6-13 in Adjustments

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN002 (REC 1A)
Measurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	·Hi8 ME tape 52 (REC Y (ME E)) ·Hi8 MP tape 53 (REC Y (M E)) ·Normal MP tape 55 (REC Y (MP L))
Specified Value	·Hi8 ME tape 310± 5mVp-p ·Hi8 MP tape 290± 5mVp-p ·Normal MP tape 280± 5mVp-p
Remarks	Input the same data as that of address 52 into address 54.

EVR from Pin ⑱ (MT 1A). Pin ⑲ (MT 1B). Pin ⑳ (MT 2A). Pin ㉑ (MT 2B) of IC303

Playback Frequency Characteristics Adjustment

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode frequency characteristics (WR5-7CE)
Measurement Point	Pin ⑪ of CN002 (CH1A, CH1B) Pin ⑫ of CN002 (CH2A, CH2B)
Measurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	42 (MT 1A (E)) 44 (MT 1B (E)) 3E (MT 2A (E)) 40 (MT 2B (E))
Specified Value	45MHz level:8.5MHz level = 3: (2.0±0.2)
Remarks	Input the same data as those of addresses 42, 44, 3E, 41, to addresses 43, 45, 3F, 41, respectively

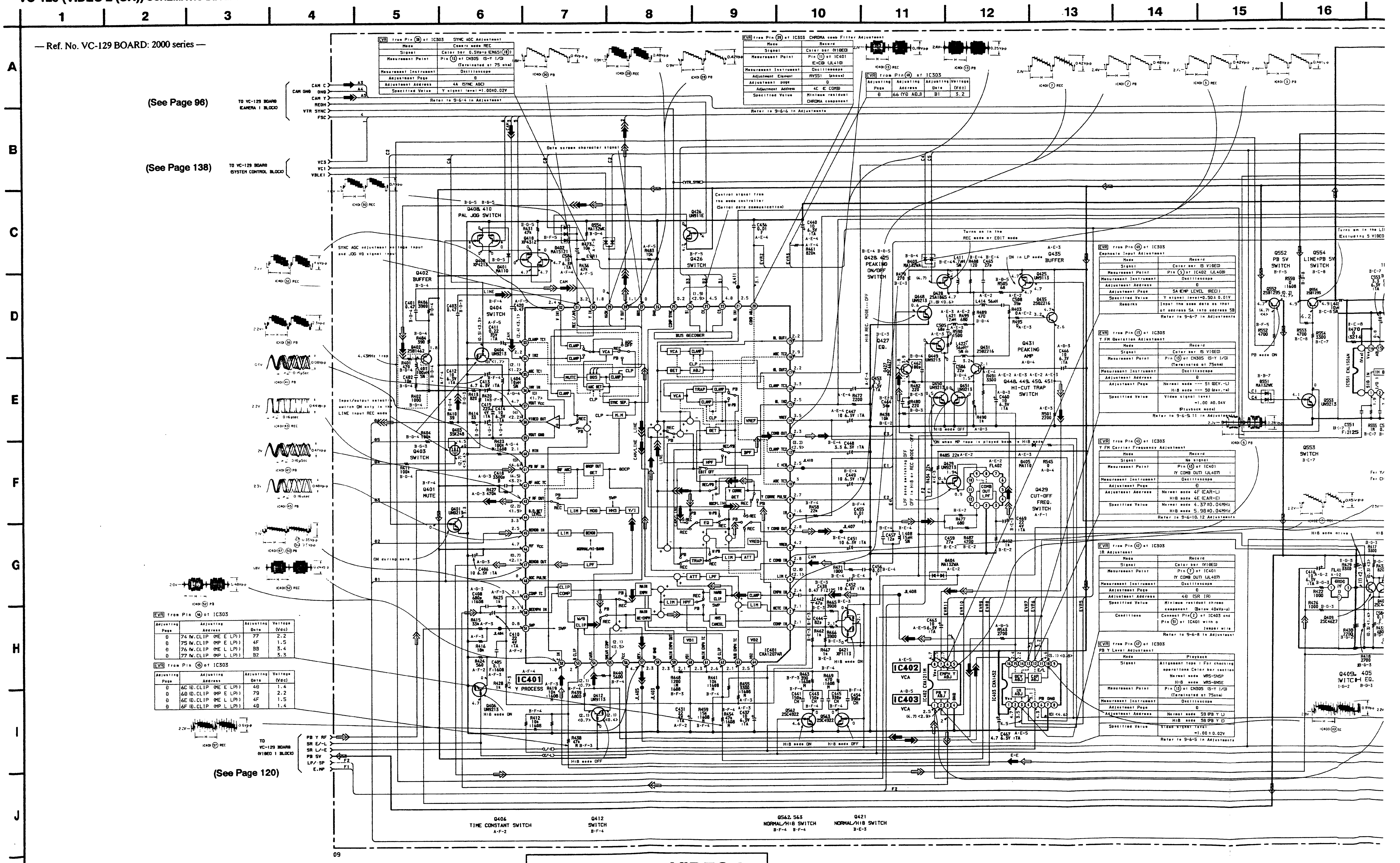
Refer to 9-6-1 in Adjustments

EVR From pin ㉒ of IC303

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode ferquency characteristics (WE5-7CE)
Measurement Point	CH1:Pin ⑪ of CN002 EXT TRIG:Pin ⑨ of CN002
Measuring Instrument	Oscilloscope TRIG SLOPE:-
Adjustment Page	D
Adjustment Address	3C (MT EQ (E))
Specified Value	8.5MH level is maximum
Conditions	Input data FF to page D, address 42. Return the data after adjustments.
Note	Input the same data as address 3C to address 3D.

VC-129 (VIDEO 2 (SR)) SCHEMATIC DIAGRAM

- Refer to page 108 for Printed Wiring Board on the VC-129 board.



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— Ref. No. VC-129 BOARD: 2000 series —
(See Page 96)
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 120)
TO VC-129 BOARD (VIDEO 1 BLOCK)
Q408, 410 PAL JOG SWITCH
Q402 BUFFER
Q404 SWITCH
Q403 SWITCH
Q401 MUTE
Q426 SWITCH
Q428, 425 PEAKING ON/OFF SWITCH
Q427 EQ.
Q435 BUFFER
Q431 PEAKING AMP
Q448, 449, 450, 451 HI-CUT TRAP SWITCH
Q429 CUT-OFF FREQ. SWITCH
Q552 PB 5V SWITCH
Q554 LINE+PB 5V SWITCH
Q553 SWITCH
Q409, 405 SWITCH EQ.
IC401 CXA1207AR
IC401 Y PROCESS
IC402 VCA
IC403 VCA
Q406 TIME CONSTANT SWITCH
Q412 SWITCH
Q562, 563 NORMAL/HI8 SWITCH
Q421 NORMAL/HI8 SWITCH
09

EVR from Pin ㊳ of IC303 SYNC AGC Adjustment

Mode	Camera mode REC
Signal	Color bar 0.5Vp-p (CN651⑱)
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75 ohm)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (SYNC AGC)
Specified Value	Y signal level =1.00±0.02V

Refer to 9-6-4 in Adjustment

EVR from Pin ㊴ of IC303 CHROMA comb Filter Adjustment

Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin ⑪ of IC401 (C+CD) (JL410)
Mesurement Instrument	Oscilloscope
Adjustment Element	RV551 (phase)
Adjustment page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum residual CHROMA component

Refer to 9-6-6 in Adjustments

EVR from Pin ㊵ of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	66 (YD ADJ)	B1	3.2

EVR from Pin ㊻ of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	74 (W.CLIP (ME E LP))	77	2.2
D	75 (W.CLIP (MP E LP))	4F	1.5
D	76 (W.CLIP (ME L LP))	BB	3.4
D	77 (W.CLIP (MP L LP))	B2	3.3

EVR from Pin ㊺ of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	6C (D.CLIP (ME E LP))	4D	1.4
D	6D (D.CLIP (MP E LP))	79	2.2
D	6E (D.CLIP (ME L LP))	4F	1.5
D	6F (D.CLIP (MP L LP))	4D	1.4

EVR from Pin ㊽ of IC303
Emphasis Input Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin ⑤ of IC402 (JL408)
Mesurement Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	5A (EMP LEVEL (REC))
Specified Value	Y signal level=0.50± 0.01V
Remarks	Input the same data as that of address 5A into address 5B

Refer to 9-6-7 in Adjustments

EVR from Pin ⑬ of IC303
Y FM Deviation Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	Normal mode --- 51 (DEV.-L) Hi8 mode --- 50 (dev.-e)
Specified Value	Video signal level =1.00 ±0.04V (Playback mode)

Refer to 9-6-9, 11 in Adjustments

EVR from Pin ㊸ of IC303
Y FM Carrier Frequency Adjustment

Mode	Record
Signal	No signal
Mesurement Point	Pin ㊸ of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 4F (CAR-L) Hi8 mode 4E (CAR-E)
Specified Value	Normal mode 4.37±0.04MHz Hi8 mode 5.98±0.04MHz

Refer to 9-6-10, 12 Adjustments

EVR from Pin ㊷ of IC303
IR Adjustment

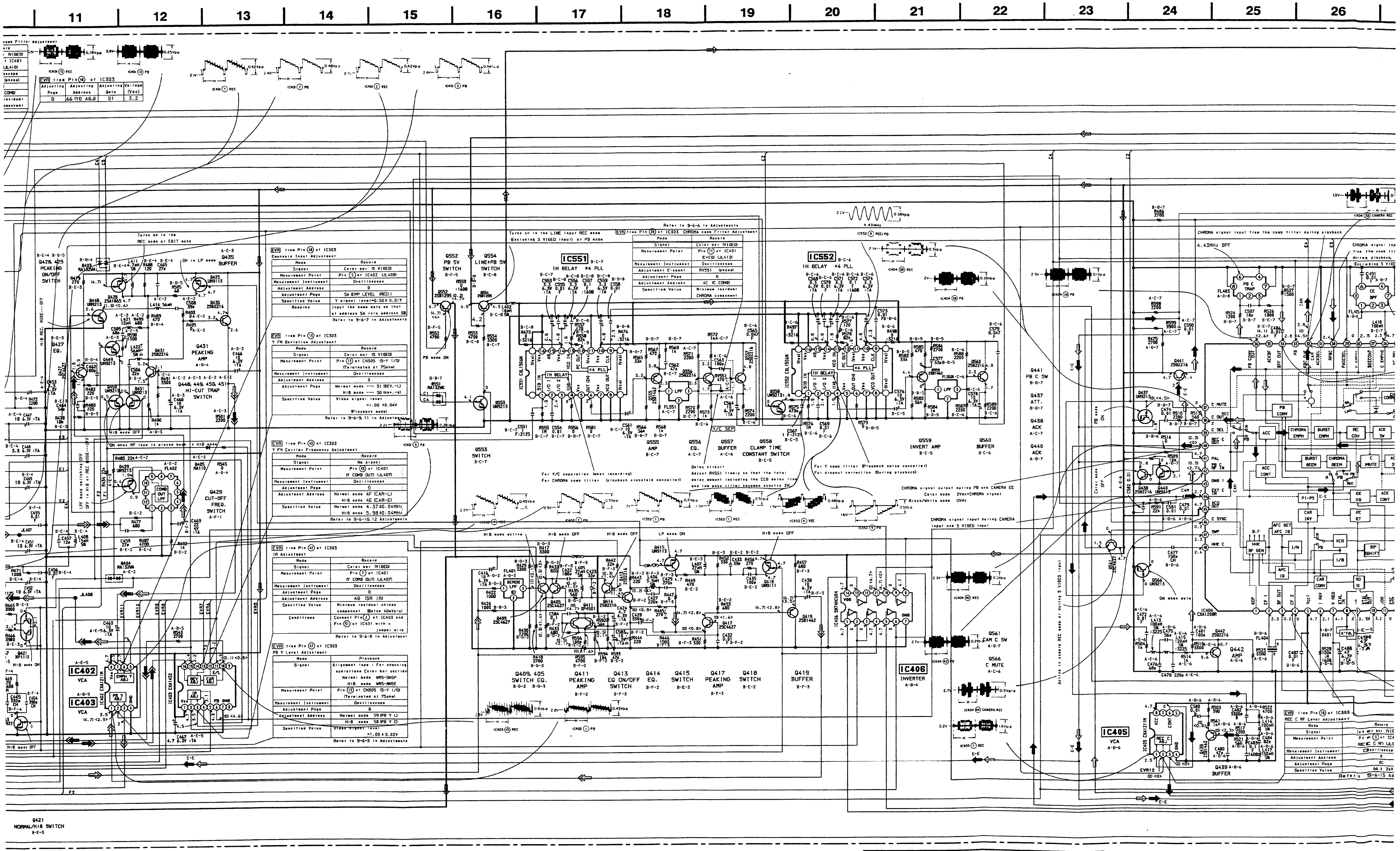
Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin ⑦ of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Minimum residual chroma component (Below 40mVp-p)
Conditions	Connect Pin② of IC403 and Pin (51) of IC401 with a jumper wire

Refer to 9-6-8 in Adjustment

EVR from Pin ㊼ of IC303
PB Y Level Adjustment

Mode	Playback
Signal	Alignment tape : For checking operations Color bar section Normal mode WR5-5NSP Hi8 mode WR5-8NSE
Mesurement Point	Pin ⑬ of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 59 (PB Y L) Hi8 mode 58 (PB Y E)
Specified Value	Video signal level =1.00 ± 0.02V

Refer to 9-6-5 in Adjustments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IC401 (13) REC
IC401 (13) PB
IC401 (7) REC
IC401 (7) PB
IC401 (3) REC
IC401 (3) PB
Q428, 425 PEAKING ON/OFF SWITCH
Q427 EQ.
Q435 BUFFER
Q431 PEAKING AMP
Q448, 449, 450, 451 HI-CUT TRAP SWITCH
Q429 CUT-OFF FREQ. SWITCH
Q552 PB 5V SWITCH
Q554 LINE+PB 5V SWITCH
Q553 SWITCH
IC551 1H DELAY ×4 PLL
IC552 1H DELAY ×4 PLL
Q555 AMP
Q556 EQ.
Q557 BUFFER
Q558 CLAMP TIME CONSTANT SWITCH
Q559 INVERT AMP
Q560 BUFFER
Turns on in the LINE input REC mode (Excluding S VIDEO input) or PB mode
Turns on in the REC mode or EDIT mode
ON in LP mode
ON when HP tape is played back
For Y/C separation (when recording)
For CHROMA comb filter (playback crosstalk canceller)
For Y comb filter (Playback noise canceller)
For dropout correction (During playback)
Delay circuit
Adjust RV551 finely so that the total delay amount including the CCD delay line and low pass filter becomes exactly 2H.
CHROMA signal input from the comb filter during playback
CHROMA signal output during PB and CAMERA EE
CHROMA signal input during CAMERA input and S VIDEO input
4.43MHz BPF
IC402 VCA
IC403 VCA
IC406 INVERTER
IC405 VCA
IC404 CXA1208R
Q409, 405 SWITCH EQ.
Q411 PEAKING AMP
Q413 EQ ON/OFF SWITCH
Q414 EQ.
Q415 SWITCH
Q417 PEAKING AMP
Q418 SWITCH
Q419 BUFFER
Q421 NORMAL/HI8 SWITCH
Q441 PB C SW
Q437 ATT.
Q438 ACK
Q440 ACK
Q442 AMP
Q439 BUFFER
Q561 CAM C SW
Q566 C MUTE
Q564
Hi8 mode active
Hi8 mode OFF
LP mode ON
ON when mute
Active in camera REC mode or during S VIDEO input

EVR from Pin (48) of IC303

Adjusting Page	Adjusting Address	Adjusting Data	Voltage (Vdc)
D	66 (YD ADJ)	B1	3.2

EVR from Pin (48) of IC303
Emphasis Input Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin (5) of IC402 (JL408)
Mesurement Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	5A (EMP LEVEL (REC))
Specified Value	Y signal level=0.50± 0.01V
Remarks	Input the same data as that of address 5A into address 5B

Refer to 9-6-7 in Adjustments

EVR from Pin (13) of IC303
Y FM Deviation Adjustment

Mode	Record
Signal	Color bar (S VIDEO)
Mesurement Point	Pin (13) of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Address	D
Adjustment Page	Normal mode --- 51 (DEV.-L) Hi8 mode --- 50 (dev.-e)
Specified Value	Video signal level -1.00 ±0.04V (Playback mode)

Refer to 9-6-9, 11 in Adjustments

EVR from Pin (43) of IC303
Y FM Carrier Frequency Adjustment

Mode	Record
Signal	No signal
Mesurement Point	Pin (43) of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 4F (CAR-L) Hi8 mode 4E (CAR-E)
Specified Value	Normal mode 4.37±0.04MHz Hi8 mode 5.98±0.04MHz

Refer to 9-6-10, 12 Adjustments

EVR from Pin (42) of IC303
IR Adjustment

Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin (7) of IC401 (Y COMB OUT) (JL407)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Minimum residual chroma component (Below 40mVp-p)
Conditions	Connect Pin (2) of IC403 and Pin (51) of IC401 with a jumper wire

Refer to 9-6-8 in Adjustment

EVR from Pin (47) of IC303
PB Y Level Adjustment

Mode	Playback
Signal	Alignment tape : For checking operations Color bar section Normal mode WR5-5NSP Hi8 mode WR5-8NSE
Mesurement Point	Pin (13) of CN305 (S-Y I/O) (Terminated at 75ohm)
Mesurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	Normal mode 59 (PB Y L) Hi8 mode 58 (PB Y E)
Specified Value	Video signal level -1.00 ± 0.02V

Refer to 9-6-5 in Adjustments

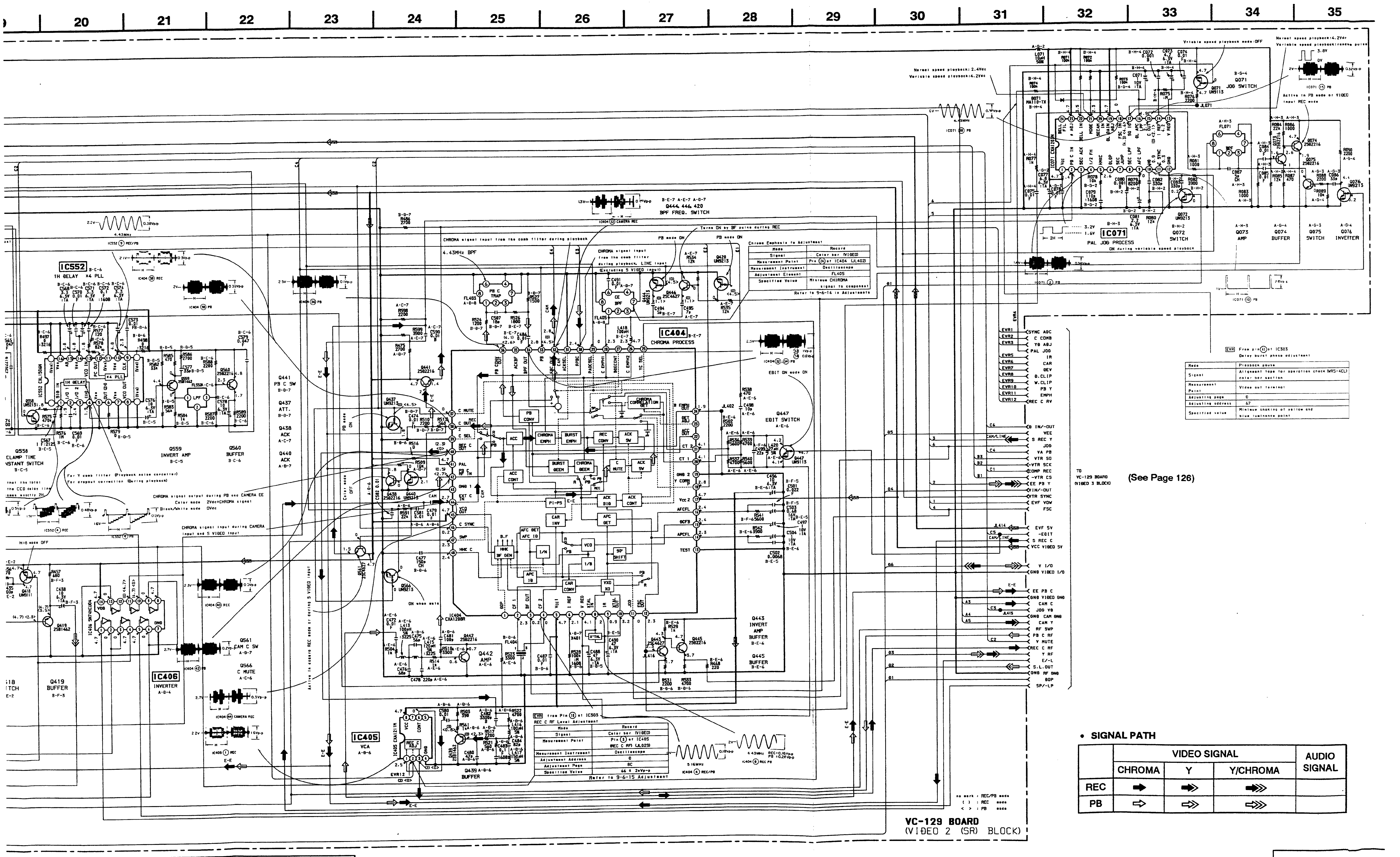
Refer to 9-6-6 in Adjustments
EVR from Pin (39) of IC303 CHROMA comb Filter Adjustment

Mode	Record
Signal	Color bar (VIDEO)
Mesurement Point	Pin (11) of IC401 (C+CD) (JL410)
Mesurement Instrument	Oscilloscope
Adjustment Element	RV551 (phase)
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum residual CHROMA component

EVR from Pin (10) of IC303
REC C RF Level Adjustment

Mode	Record
Signal	Color bar (VIE
Mesurement Point	Pin (3) of IC4 (REC C RF) (JLC
Mesurement Instrument	Oscilloscop
Adjustment Address	D
Adjustment Page	8C
Specified Value	66 ± 2mV

Refer to 9-6-15 Ad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IC552
1H DELAY ×4 PLL
Q558
CLAMP TIME
CONSTANT SWITCH
Q559
INVERT AMP
Q560
BUFFER
Q418
Q419
BUFFER
IC406
INVERTER
Q561
CAM C SW
Q566
C MUTE
IC405
VCA
Q439
BUFFER
Q441
PB C SW
Q437
ATT.
Q438
ACK
Q440
ACK
Q442
AMP
IC404
CHROMA PROCESS
Q444, 446, 420
BPF FREQ. SWITCH
4.43MHz BPF
PB C TRAP
CE BPF
Q447
EDIT SWITCH
Q443
INVERT
AMP
BUFFER
Q445
BUFFER
IC071
PAL JOG PROCESS
Q071
JOG SWITCH
Q072
SWITCH
Q073
AMP
Q074
BUFFER
Q075
SWITCH
Q076
INVERTER
TO
VC-129 BOARD
(VIDEO 3 BLOCK)
(See Page 126)
VC-129 BOARD
(VIDEO 2 (SR) BLOCK)

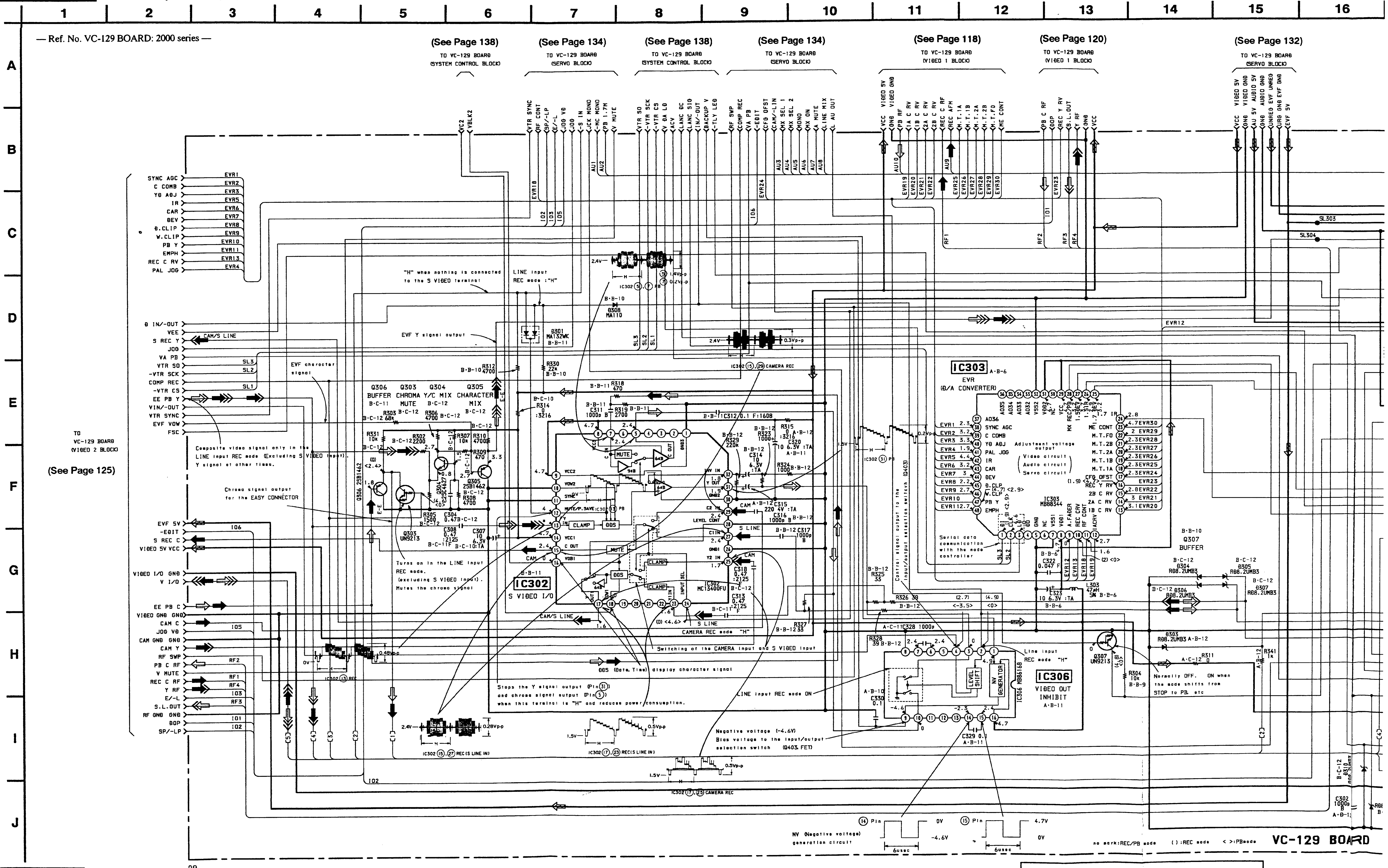
• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	
PB	⇨	⇨⇨	⇨⇨⇨	

VC-129 (VIDEO 3 (I/O)) SCHEMATIC DIAGRAM

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. VC-129 BOARD: 2000 series —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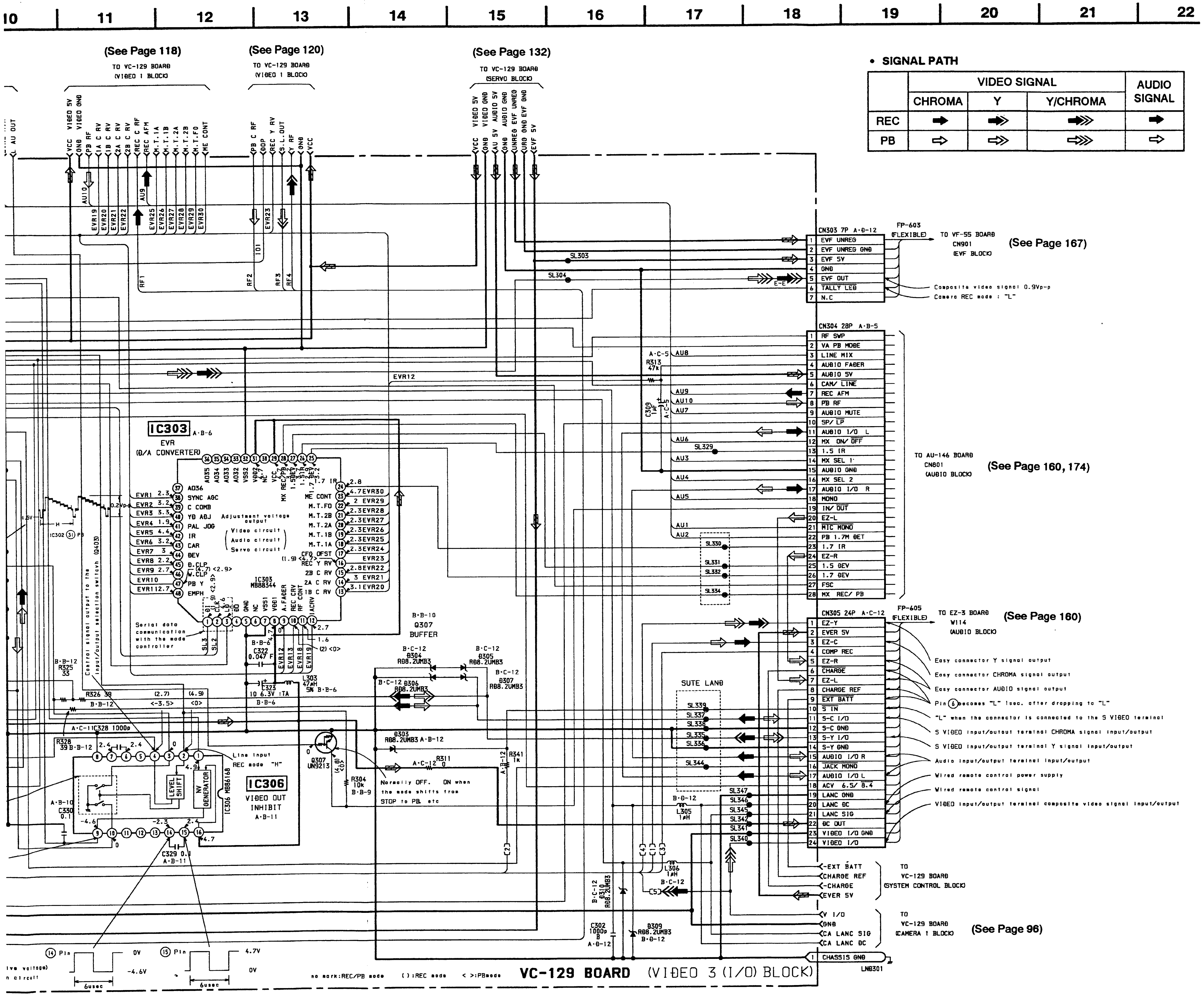
H
I
J
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 138)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
(See Page 118)
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 120)
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 132)
TO VC-129 BOARD (SERVO BLOCK)
TO VC-129 BOARD (VIDEO 2 BLOCK)
(See Page 125)
SYNC AGC
C COMB
YB ADJ
IR
CAR
DEV
B.CLIP
W.CLIP
PB Y
EMPH
REC C RV
PAL JOG
B IN/-OUT
VEE
S REC Y
JOG
VA PB
VTR SD
-VTR SCK
COMP REC
-VTR CS
EE PB Y
VIN/-OUT
VTR SYNC
EVF VDW
FSC
EVF 5V
-EDIT
S REC C
VIDEO 5V VCC
VIDEO I/O GND
V I/O
EE PB C
VIDEO GND GND
CAM C
JOG VD
CAM GND GND
CAM Y
RF SWP
PB C RF
V MUTE
REC C RF
Y RF
E/-L
S.L.OUT
RF GND GND
BOP
SP/-LP
CAM/S LINE
"H" when nothing is connected to the S VIDEO terminal
LINE input REC mode : "H"
EVF Y signal output
EVF character signal
Composite video signal only in the LINE input REC mode (Excluding S VIDEO input). Y signal at other times.
Chroma signal output for the EASY CONNECTOR
Turns on in the LINE input REC mode. (excluding S VIDEO input). Mutes the chroma signal
Q306 BUFFER
Q303 CHROMA MUTE
Q304 Y/C MIX
Q305 CHARACTER MIX
IC302
S VIDEO I/O
IC302 MC13400FU
CLAMP
MUTE
DDS
S LINE
CAMERA REC mode "H"
Switching of the CAMERA input and S VIDEO input
DDS (Date, Time) display character signal
Stops the Y signal output (Pin ㉛) and chroma signal output (Pin ⑤) when this terminal is "H" and reduces power consumption.
LINE input REC mode ON
Negative voltage (-4.6V)
Bias voltage to the input/output selection switch (Q403, FET)
IC302 ⑮, ㉗ REC(S LINE IN)
IC302 ⑰, ㉓ REC(S LINE IN)
IC302 ⑰, ㉓ CAMERA REC
IC302 ㉙ CAMERA REC
IC303
EVR (D/A CONVERTER)
IC303 MB88344
Adjustment voltage output
(Video circuit Audio circuit Servo circuit)
Serial data communication with the mode controller
Control signal output to the input/output selection switch (Q403)
IC306
VIDEO OUT INHIBIT
LEVEL SHIFT
NV GENERATOR
IC306 MB86168
Line input REC mode "H"
Q307 BUFFER
Q307 UN9213
Normally OFF. ON when the mode shifts from STOP to PB. etc
⑭ Pin
⑮ Pin
NV (Negative voltage) generation circuit
6usec
0V
-4.6V
4.7V
no mark:REC/PB mode
( ) :REC mode
< > :PB mode
VC-129 BOARD

09

— Ref. No. FP-423 BOARD:

- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>	➡>>	➡
PB	⇨	⇨>	⇨>>	⇨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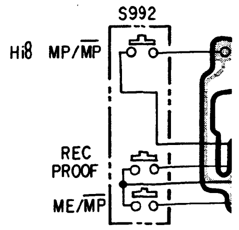
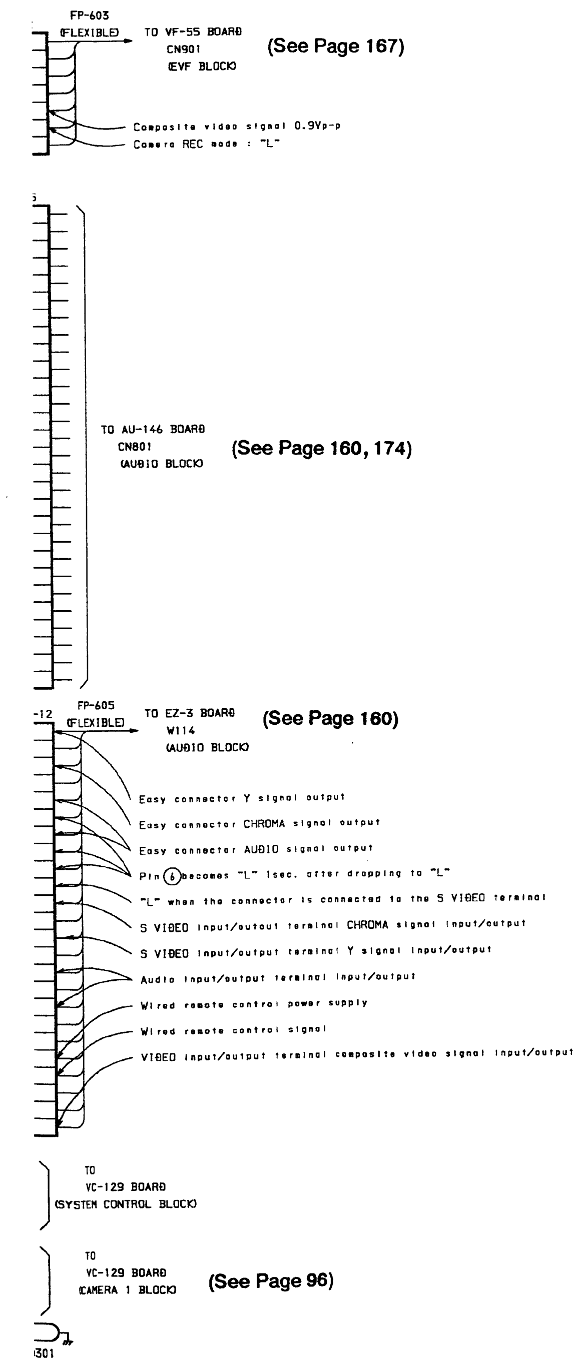
(See Page 118)
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 120)
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 132)
TO VC-129 BOARD (SERVO BLOCK)
IC303 A·B-6
EVR (D/A CONVERTER)
IC303 MB88344
IC306
VIDEO OUT INHIBIT
A·B-11
IC306 MB88168
LEVEL SHIFT
NV GENERATOR
Q307 BUFFER
Q307 UN9213
Serial data communication with the mode controller
Control signal output to the input/output selection switch (Q403)
Adjustment voltage output (Video circuit, Audio circuit, Servo circuit)
Line input REC mode "H"
Normally OFF. ON when the mode shifts from STOP to PB, etc
SUTE LAND
CN303 7P A·D-12
1 EVF UNREG
2 EVF UNREG GND
3 EVF 5V
4 GND
5 EVF OUT
6 TALLY LED
7 N.C
FP-603 (FLEXIBLE)
TO VF-55 BOARD CN901 (EVF BLOCK)
(See Page 167)
Composite video signal 0.9Vp-p
Camera REC mode : "L"
CN304 28P A·B-5
1 RF SWP
2 VA PB MODE
3 LINE MIX
4 AUDIO FADER
5 AUDIO 5V
6 CAM/ LINE
7 REC AFM
8 PB RF
9 AUDIO MUTE
10 SP/ LP
11 AUDIO I/O L
12 MX ON/ OFF
13 1.5 IR
14 MX SEL 1
15 AUDIO GND
16 MX SEL 2
17 AUDIO I/O R
18 MONO
19 IN/ OUT
20 EZ-L
21 MIC MONO
22 PB 1.7M DET
23 1.7 IR
24 EZ-R
25 1.5 DEV
26 1.7 DEV
27 FSC
28 MX REC/ PB
TO AU-146 BOARD CN801 (AUDIO BLOCK)
(See Page 160, 174)
CN305 24P A·C-12
1 EZ-Y
2 EVER 5V
3 EZ-C
4 COMP REC
5 EZ-R
6 CHARGE
7 EZ-L
8 CHARGE REF
9 EXT BATT
10 S IN
11 S-C I/O
12 S-C GND
13 S-Y I/O
14 S-Y GND
15 AUDIO I/O R
16 JACK MONO
17 AUDIO I/O L
18 ACV 6.5/ 8.4
19 LANC GND
20 LANC DC
21 LANC SIG
22 DC OUT
23 VIDEO I/O GND
24 VIDEO I/O
FP-605 (FLEXIBLE)
TO EZ-3 BOARD W114 (AUDIO BLOCK)
(See Page 160)
Easy connector Y signal output
Easy connector CHROMA signal output
Easy connector AUDIO signal output
Pin ⑥ becomes "L" 1sec. after dropping to "L"
"L" when the connector is connected to the S VIDEO terminal
S VIDEO input/outout terminal CHROMA signal input/output
S VIDEO input/output terminal Y signal input/output
Audio input/output terminal input/output
Wired remote control power supply
Wired remote control signal
VIDEO input/output terminal composite video signal input/output
EXT BATT
CHARGE REF
CHARGE
EVER 5V
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
V I/O
GND
CA LANC SIG
CA LANC DC
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 96)
1 CHASSIS GND
LND301
⑭ Pin
⑮ Pin
6usec
-4.6V
0V
4.7V
no mark:REC/PB mode ( ):REC mode < >:PBmode
VC-129 BOARD (VIDEO 3 (I/O) BLOCK)


S992
Hi8 MP/MP
REC PROOF
ME/MP

19 | 20 | 21 | 22

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>	➡>>	➡
PB	⇨	⇨>	⇨>>	⇨

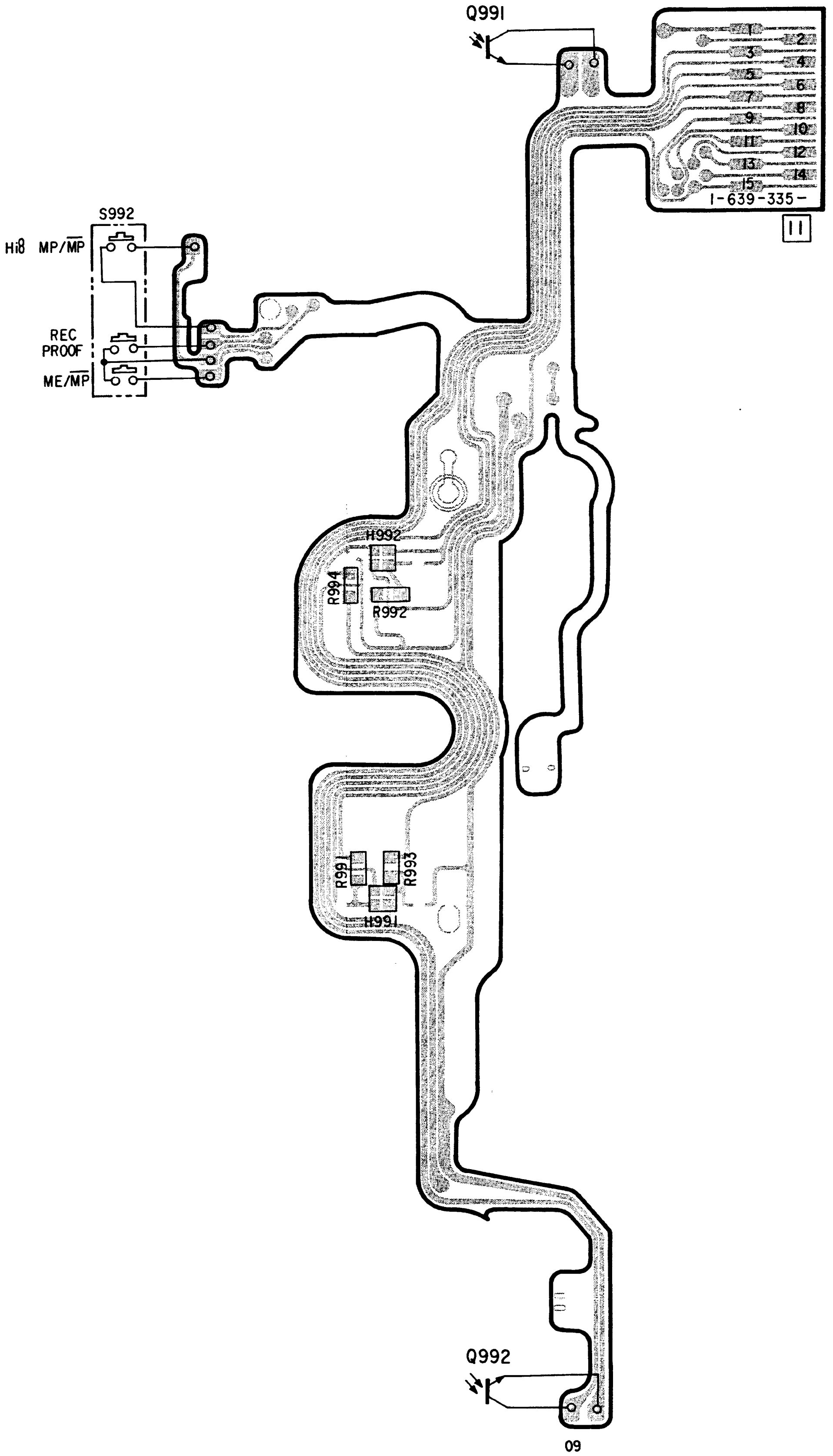

FP-603
(FLEXIBLE)
TO VF-55 BOARD
CN901
(EVF BLOCK)
(See Page 167)
Composite video signal 0.9Vp-p
Camera REC mode : "L"
TO AU-146 BOARD
CN801
(AUDIO BLOCK)
(See Page 160, 174)
-12
FP-605
(FLEXIBLE)
TO EZ-3 BOARD
W114
(AUDIO BLOCK)
(See Page 160)
Easy connector Y signal output
Easy connector CHROMA signal output
Easy connector AUDIO signal output
Pin ⑥ becomes "L" 1sec. after dropping to "L"
"L" when the connector is connected to the S VIDEO terminal
S VIDEO input/outout terminal CHROMA signal input/output
S VIDEO input/output terminal Y signal input/output
Audio input/output terminal input/output
Wired remote control power supply
Wired remote control signal
VIDEO input/output terminal composite video signal input/output
TO
VC-129 BOARD
(SYSTEM CONTROL BLOCK)
TO
VC-129 BOARD
(CAMERA 1 BLOCK)
(See Page 96)
301

FP-423 (TAPE TOP/END SENSOR, TAPE SELECT) PRINTED WIRING BOARD

- Refer to page 108 for Printed Wiring Board on the VC-129 board.

— Ref. No. FP-423 BOARD: 4000 series —

FP-423 FLEXIBLE BOARD
(COMPONENT SIDE)


Q991
S992
Hi8 MP/MP
REC PROOF
ME/MP
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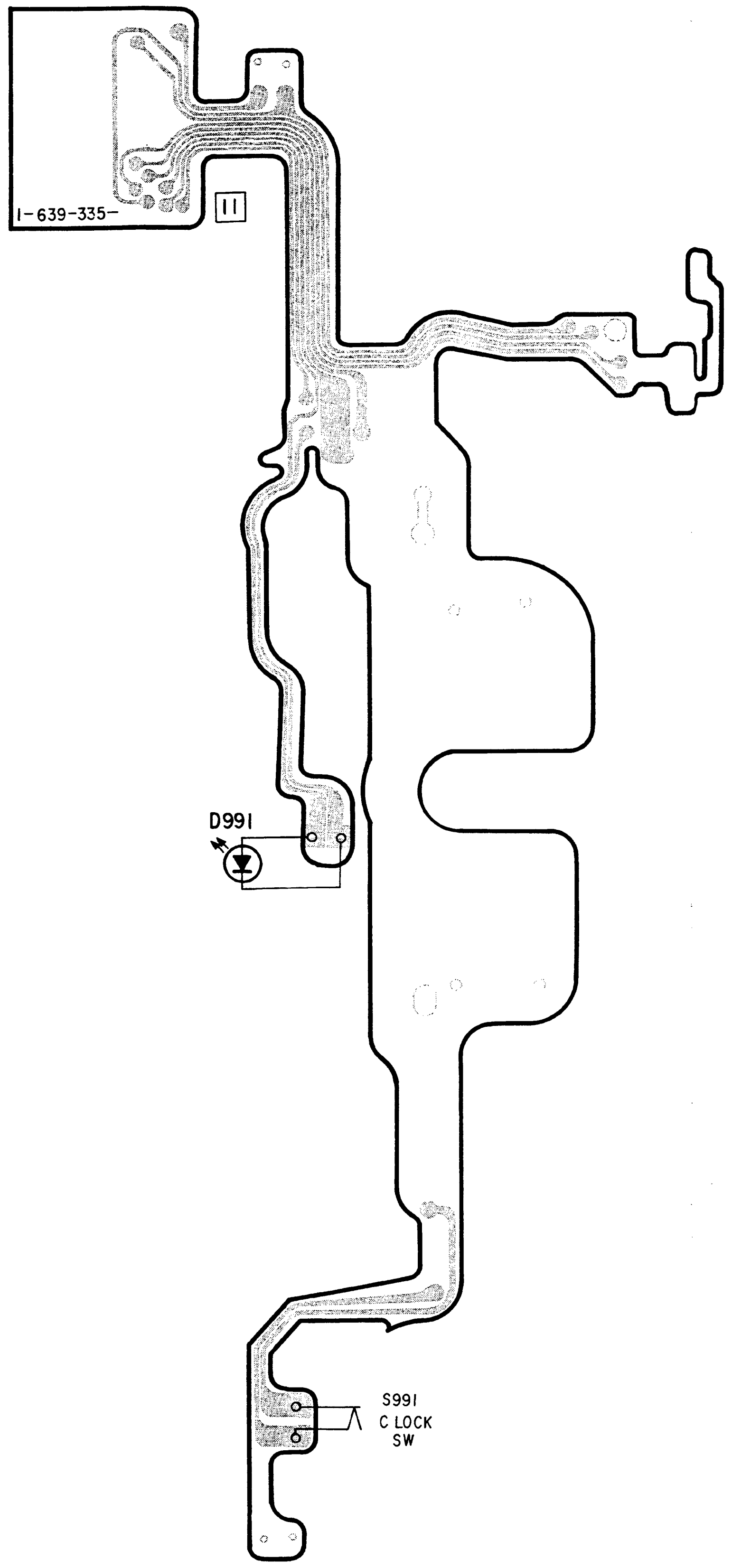
1-639-335-
11
H992
R994
R992
R991
R993
H991
Q992
09

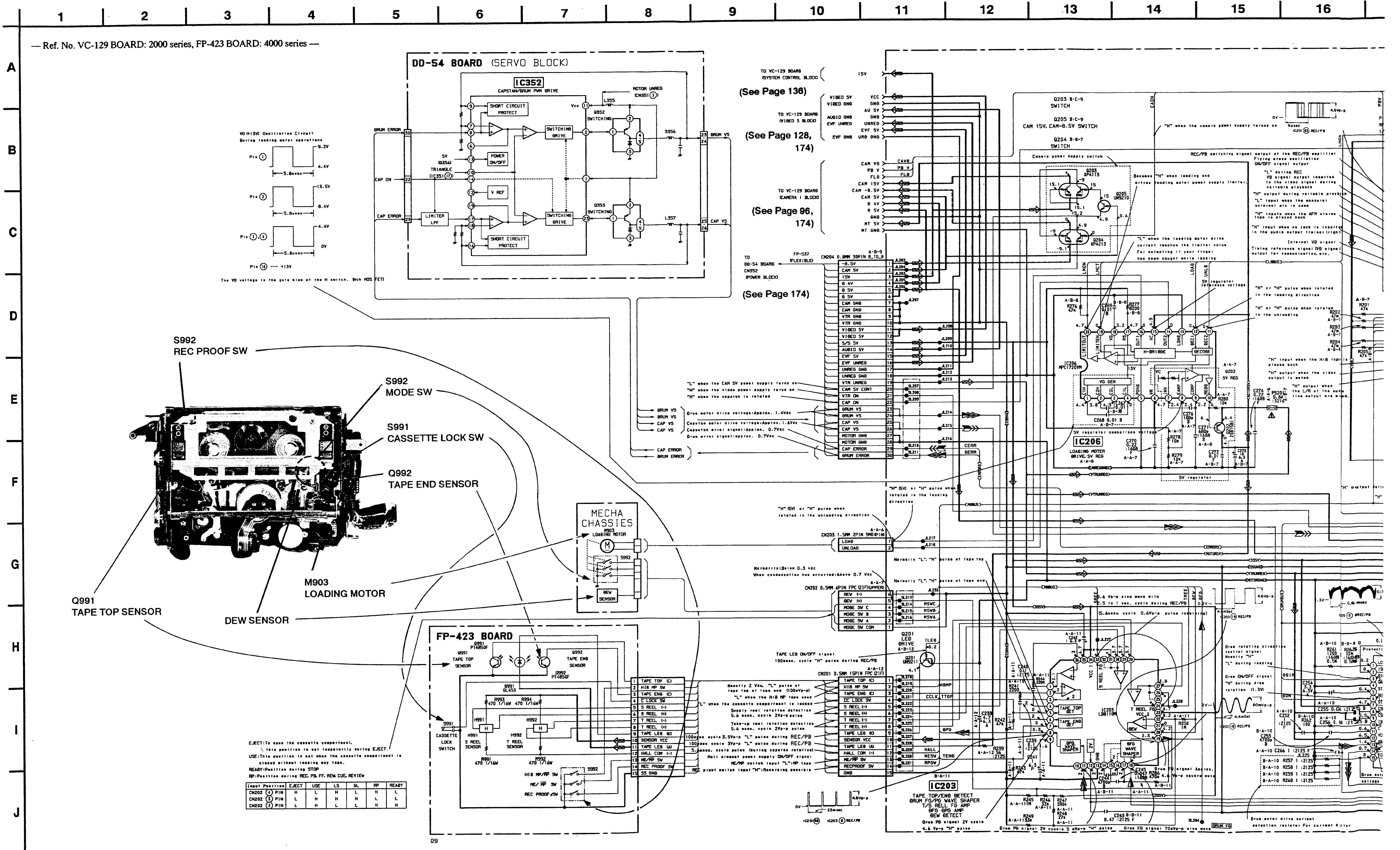
FP-423 FLEXIBLE BOARD
(CONDUCTOR SIDE)


1-639-335-
11
D991
S991
C LOCK
SW

VC-129 (SERVO CONTROL (SS)), FP-423 (TAPE TOP/END SENSOR, TAPE SELECT) SCHEMATIC DIAGRAMS

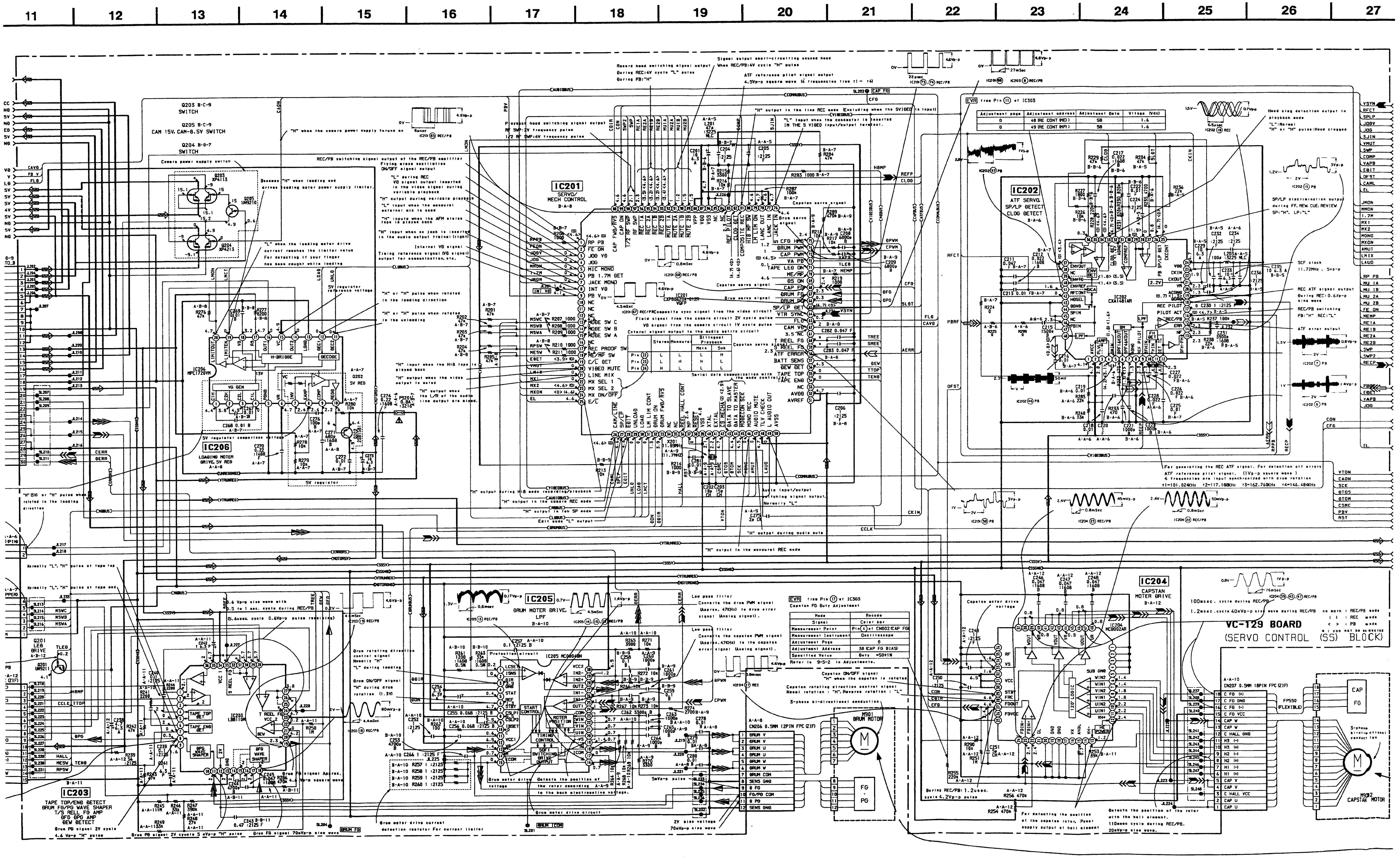
- Refer to page 108 for Printed Wiring Board on the VC-129 board.

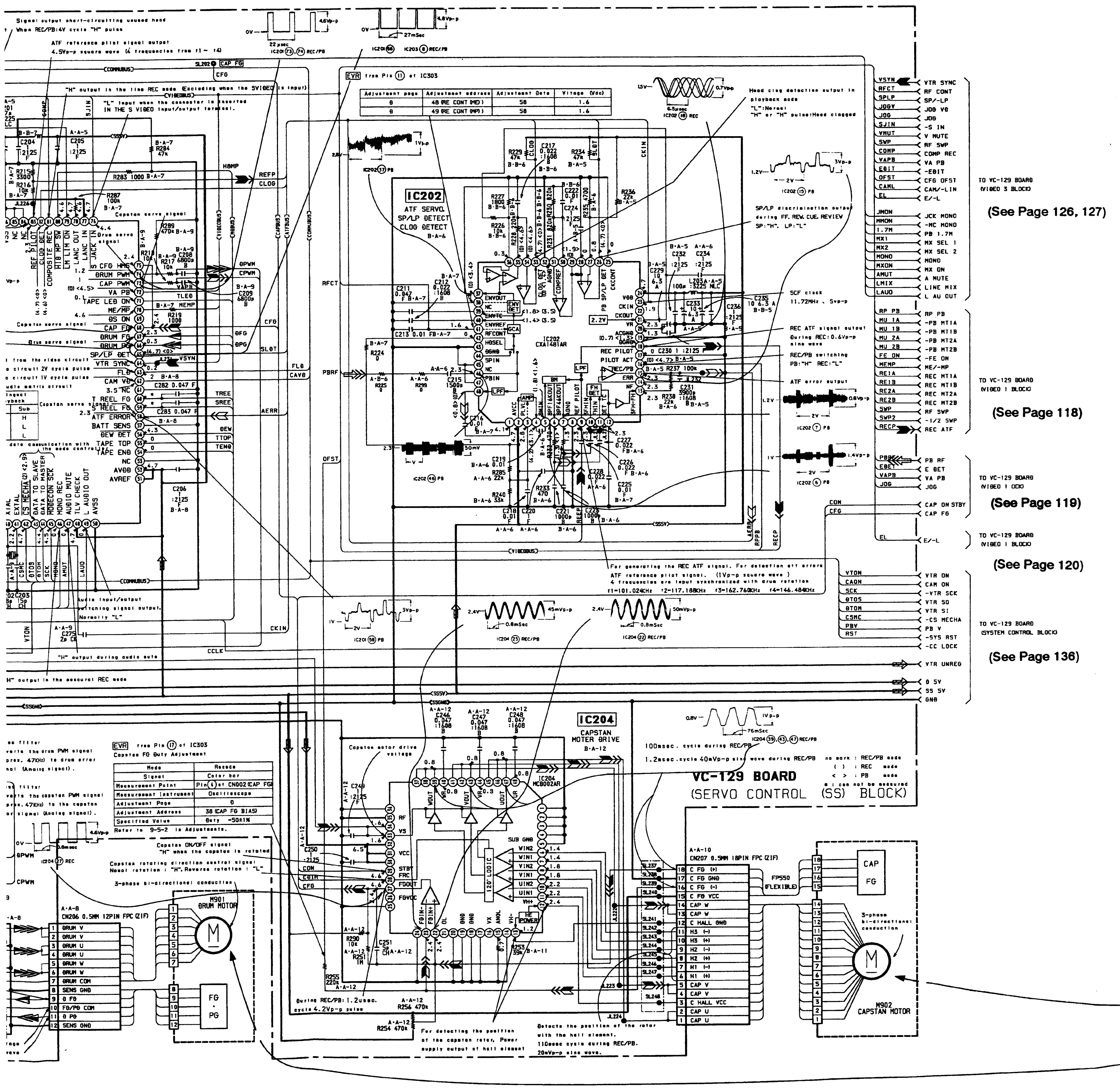
— Ref. No. VC-129 BOARD: 2000 series, FP-423 BOARD: 4000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
DD-54 BOARD (SERVO BLOCK)
IC352
CAPSTAN/DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
POWER ON/OFF
V REF
LIMITER LPF
SWITCHING DRIVE
Q352 SWITCHING
Q353 SWITCHING
DRUM ERROR
CAP ON
CAP ERROR
DRUM VS
CAP VS
S992 REC PROOF SW
S992 MODE SW
S991 CASSETTE LOCK SW
Q992 TAPE END SENSOR
M903 LOADING MOTOR
Q991 TAPE TOP SENSOR
DEW SENSOR
MECHA CHASSIES
M903 LOADING MOTOR
DEW SENSOR
FP-423 BOARD
Q991 PT4850F TAPE TOP SENSOR
Q992 TAPE END SENSOR
S991 CASSETTE LOCK SWITCH
H991 S REEL SENSOR
H992 T REEL SENSOR
HI8 MP/RP SW
ME/MP SW
REC PROOF SW
(See Page 136)
(See Page 128, 174)
(See Page 96, 174)
(See Page 174)
Q203 SWITCH
Q205 SWITCH
Q204 SWITCH
IC206
LOADING MOTOR DRIVE, 5V REG
5V regulator
IC203
TAPE TOP/END DETECT
DRUM FG/PG WAVE SHAPER
T/S REEL FG AMP
DFG DPG AMP
DEW DETECT
Q201 LED DRIVE
TAPE TOP DET
TAPE END DET
DPG SHAPER
DFG WAVE SHAPER
09

EJECT:To open the cassette compartment.
↖ this position is set temporarily during EJECT.
USE:This position is set when the cassette compartment is closed without loading any tape.
READY:Position during STOP
RP:Position during REC, PB, FF, REW, CUE, REVIEW

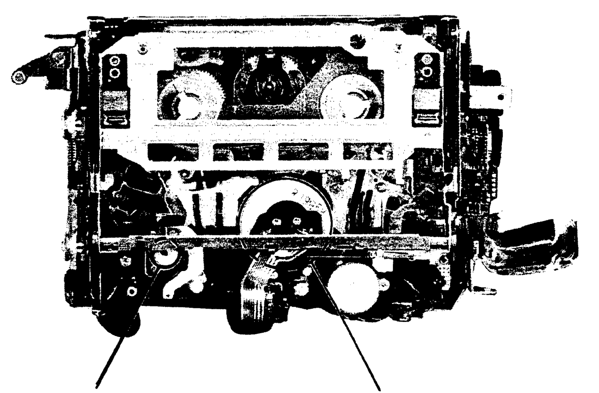
Input Position	EJECT	USE	LS	GL	RP	READY
CN202 ④ PIN	H	L	H	L	H	L
CN202 ③ PIN	L	H	H	H	L	L
CN202 ② PIN	L	H	L	L	H	H


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
IC201
SERVO/
MECH CONTROL
IC202
ATF SERVO,
SP/LP DETECT
CLOG DETECT
IC203
TAPE TOP/END DETECT
DRUM FG/PG WAVE SHAPER
T/S REEL FG AMP
DFG DPG AMP
DEW DETECT
IC204
CAPSTAN
MOTOR DRIVE
IC205
DRUM MOTOR DRIVE
LPF
IC206
LOADING MOTOR
DRIVE,5V REG
M901
DRUM MOTOR
M902
CAPSTAN MOTOR
VC-129 BOARD
(SERVO CONTROL (SS) BLOCK)


IC202
ATF SERVO,
SP/LP DETECT
CLOG DETECT
IC202
CXA1481AR
IC204
CAPSTAN
MOTER DRIVE
IC204
MCB002AR
VC-129 BOARD
(SERVO CONTROL (SS) BLOCK)
M901
DRUM MOTOR
M902
CAPSTAN MOTOR
CAP
FG
FG
PG
FP550
(FLEXIBLE)
CN206 0.5MM 12PIN FPC (ZIF)
CN207 0.5MM 18PIN FPC (ZIF)
TO VC-129 BOARD (VIDEO 3 BLOCK)
(See Page 126, 127)
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 118)
TO VC-129 BOARD (VIDEO 1 ODD)
(See Page 119)
TO VC-129 BOARD (VIDEO 1 BLOCK)
(See Page 120)
TO VC-129 BOARD (SYSTEM CONTROL BLOCK)
(See Page 136)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
* : can not be measured

- SIGNAL PATH

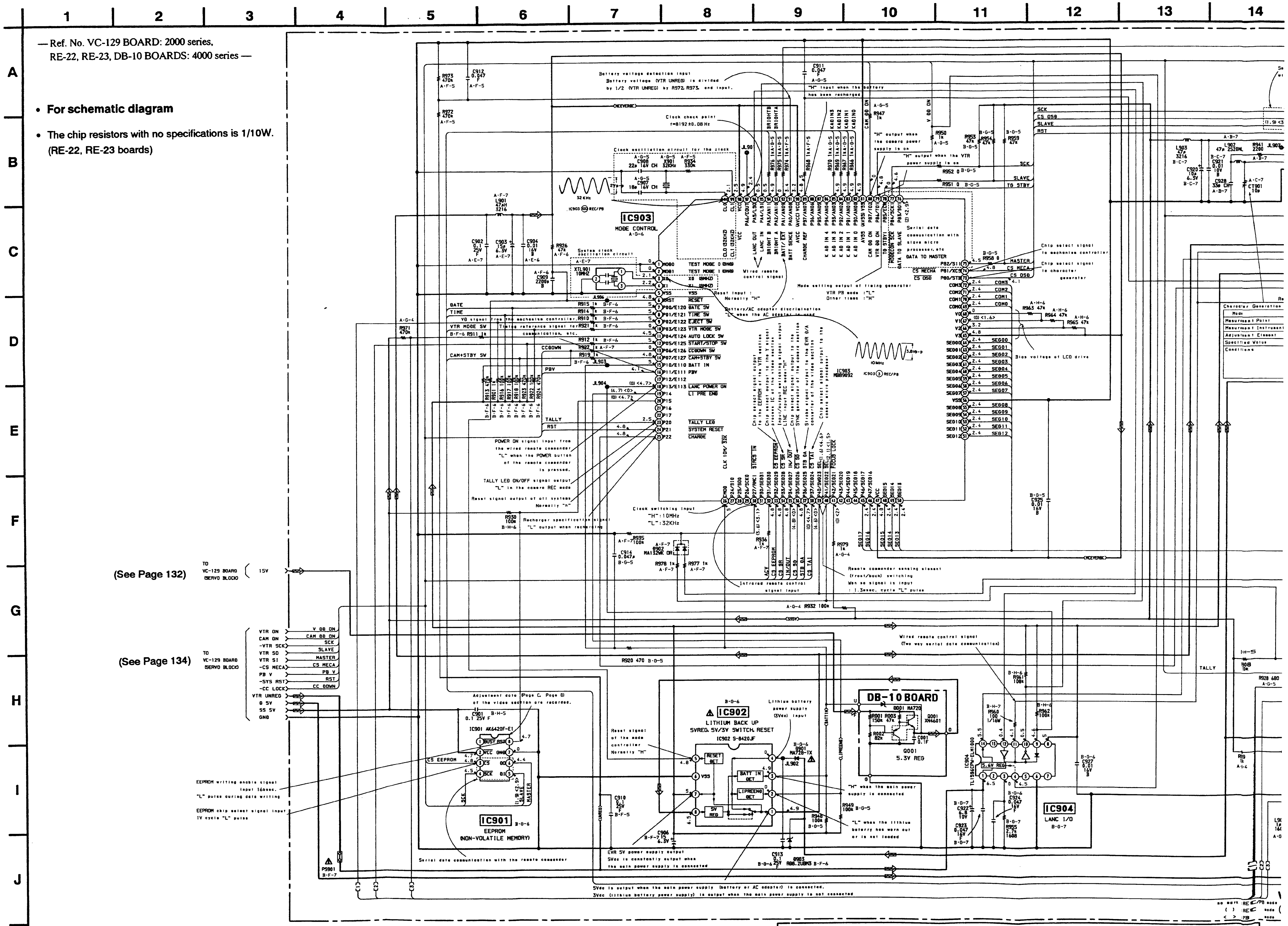
	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo (speed and phase)		▷▷	
Capstan speed servo			
Capstan phase servo	➤➤		▷▷
Capstan servo (speed and phase)		⋙	
Ref. signal	➤		▷


M902
CAPSTAN MOTOR
M901
DRUM MOTOR

VC-129 (SYSTEM CONTROL (FD)), RE-22 (FRONT REMOTE CONTROL RECEIVER), RE-23 (REAR REMOTE CONTROL RECEIVER), CF-33 (CAMERA FUNCTION SWITCH), FK-33 (VTR FUNCTION SWITCH), DB-1

— Ref. No. VC-129 BOARD: 2000 series,
RE-22, RE-23, DB-10 BOARDS: 4000 series —

- **For schematic diagram**
- The chip resistors with no specifications is 1/10W. (RE-22, RE-23 boards)


1
2
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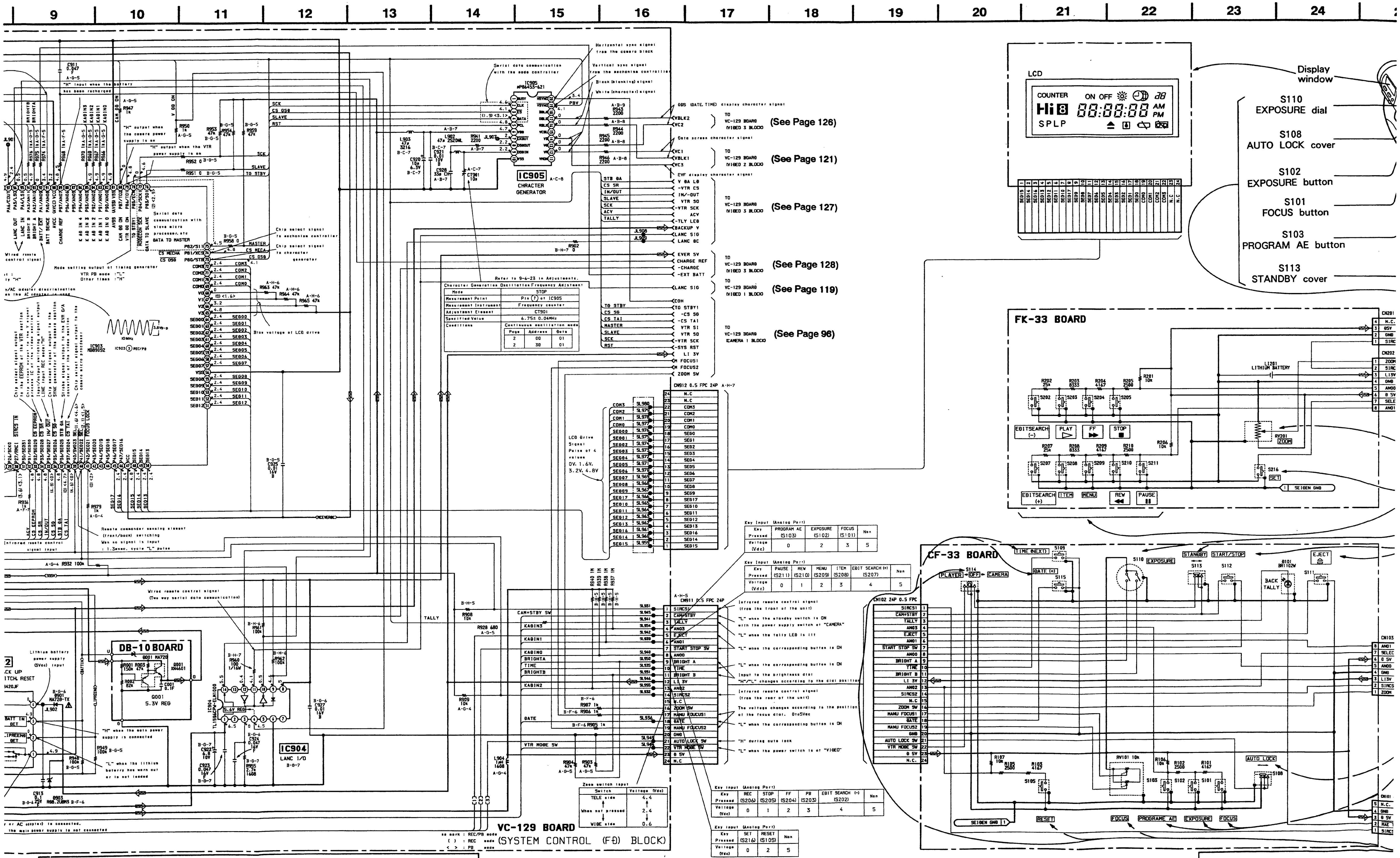
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
(See Page 132)
TO VC-129 BOARD (SERVO BLOCK)
15V
(See Page 134)
TO VC-129 BOARD (SERVO BLOCK)
VTR ON
CAM ON
-VTR SCK
VTR SO
VTR SI
-CS MECA
PB V
-SYS RST
-CC LOCK
VTR UNREG
8 5V
SS 5V
GND
IC903
MODE CONTROL
A-G-6
IC901 AK6420F-E1
IC901
EEPROM
(NON-VOLATILE MEMORY)
IC902
LITHIUM BACK UP
5VREG. 5V/3V SWITCH RESET
IC902 S-8420JF
DB-10 BOARD
Q001
5.3V REG
IC904
LANC I/O
B-G-7
Battery voltage detection input
Clock check point
f=8192±0.08Hz
Clock oscillation circuit for the clock
System clock oscillation circuit
Serial data communication with slave micro processor, etc
Chip select signal to mechanism controller
Chip select signal to character generator
Bias voltage of LCD drive
Mode setting output of timing generator
VTR PB mode : "L"
Other times : "H"
Clock switching input
"H" : 10MHz
"L" : 32KHz
Remote commander sensing element (front/back) switching
Infrared remote control signal input
Wired remote control signal (Two way serial data communication)
POWER ON signal input from the wired remote commander
TALLY LED ON/OFF signal output
Reset signal output of all systems
Adjustment data (Page C, Page 0) of the video section are recorded.
EEPROM writing enable signal input
EEPROM chip select signal input
Serial data communication with the remote commander
Reset signal of the mode controller
Normally "H"
Lithium battery power supply (3Vdc) input
EVR 5V power supply output
5Vdc is output when the main power supply (battery or AC adaptor) is connected.
3Vdc (lithium battery power supply) is output when the main power supply is not connected
09

- Refer to page 108 for Printed Wiring Board on the VC-129, DB-10 boards.


9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
IC905
CHRACTER GENERATOR
IC904
LANC I/O
DB-10 BOARD
Q001
5.3V REG
FK-33 BOARD
CF-33 BOARD
LCD
COUNTER
ON OFF
Hi8
SPLP
AM
PM
Display window
S110 EXPOSURE dial
S108 AUTO LOCK cover
S102 EXPOSURE button
S101 FOCUS button
S103 PROGRAM AE button
S113 STANDBY cover
(See Page 126)
(See Page 121)
(See Page 127)
(See Page 128)
(See Page 119)
(See Page 96)
TO VC-129 BOARD (VIDEO 3 BLOCK)
TO VC-129 BOARD (VIDEO 2 BLOCK)
TO VC-129 BOARD (VIDEO 1 BLOCK)
TO VC-129 BOARD (CAMERA 1 BLOCK)
CN912 0.5 FPC 24P
CN911 0.5 FPC 24P
CN102 24P 0.5 FPC
EDITSEARCH (-)
PLAY
FF
STOP
EDITSEARCH (+)
ITEM
MENU
REW
PAUSE
SET
SEIDEN GND
ZOOM
LITHIUM BATTERY
TIME (NEXT)
DATE (+)
PLAYER
OFF
CAMERA
EXPOSURE
STANDBY
START/STOP
EJECT
BACK TALLY
AUTO LOCK
RESET
FOCUS
PROGRAME AE
"H" during auto lock
"L" when the power switch is at "VIDEO"
Infrared remote control signal (from the front of the unit)
"L" when the standby switch is ON with the power supply switch at "CAMERA"
"L" when the tally LED is lit
VC-129 BOARD
(SYSTEM CONTROL (FD) BLOCK)
: REC/PB mode
( ) : REC mode
< > : PB mode

Refer to 9-6-23 in Adjustments.

Character Generation Oscillation Frequency Adjstment

Mode	STOP
Mesurement Point	Pin ⑦ of IC905
Mesurement Instrument	Frequency counter
Adjustment Element	CT901
Specified Value	6.75± 0.04MHz
Conditions	Continuous oscillation mode

Page	Address	Data
2	00	01
2	30	01

Key Input (Analog Port)

Key Pressed	PROGRAM AE (S103)	EXPOSURE (S102)	FOCUS (S101)	Non
Voltage (Vdc)	0	2	3	5

Key Input (Analog Port)

Key Pressed	PAUSE (S211)	REW (S210)	MENU (S209)	ITEM (S208)	EDIT SEARCH (+) (S207)	Non
Voltage (Vdc)	0	1	2	3	4	5

Key input (Analog Port)

Key Pressed	REC (S206)	STOP (S205)	FF (S204)	PB (S203)	EDIT SEARCH (-) (S202)	Non
Voltage (Vdc)	0	1	2	3	4	5

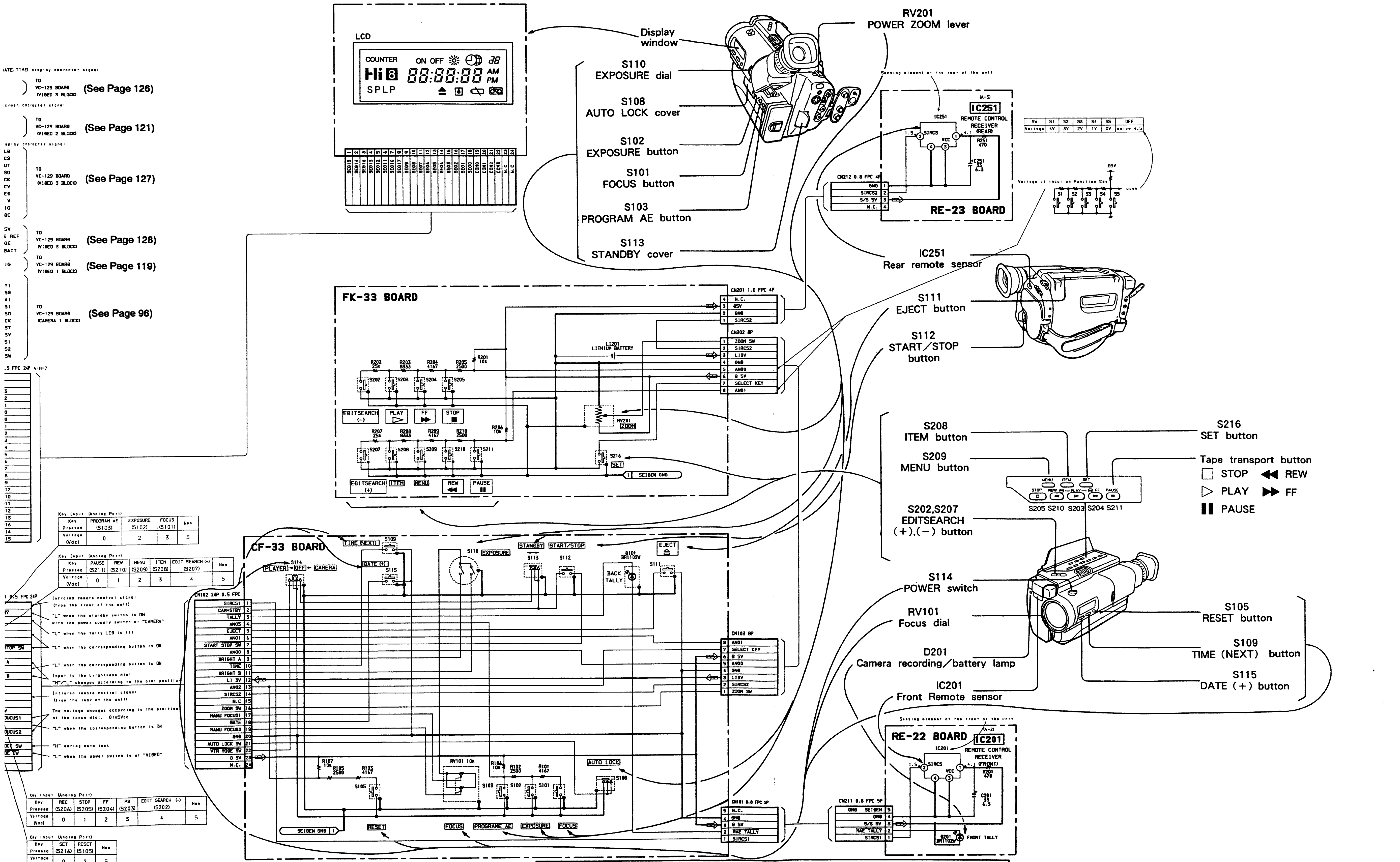
Key input (Analog Port)

Key Pressed	SET (S216)	RESET (S105)	Non
Voltage (Vdc)	0	2	5

Zoom switch input

Switch	Voltage (Vdc)
TELE side	4.4
↑	↑
When not pressed	2.4
↓	↓
WIDE side	0.6

- Refer to page 108 for Printed Wiring Board on the VC-129, DB-10 boards.


LCD
COUNTER ON OFF
Hi8
SP LP
AM PM
Display window
S110 EXPOSURE dial
S108 AUTO LOCK cover
S102 EXPOSURE button
S101 FOCUS button
S103 PROGRAM AE button
S113 STANDBY cover
RV201 POWER ZOOM lever
IC251 REMOTE CONTROL RECEIVER (REAR)
RE-23 BOARD
IC251 Rear remote sensor
S111 EJECT button
S112 START/STOP button
FK-33 BOARD
EDITSEARCH (−)
PLAY
FF
STOP
EDITSEARCH (+)
ITEM
MENU
REW
PAUSE
RV201 ZOOM
S216 SET
L1201 LITHIUM BATTERY
SEIBEN GND
S208 ITEM button
S209 MENU button
S216 SET button
Tape transport button
STOP
REW
PLAY
FF
PAUSE
S202,S207 EDITSEARCH (+),(−) button
S205 S210 S203 S204 S211
CF-33 BOARD
TIME (NEXT)
DATE (+)
PLAYER OFF CAMERA
EXPOSURE
STANDBY
START/STOP
EJECT
BACK TALLY
AUTO LOCK
RESET
FOCUS
PROGRAM AE
S114 POWER switch
RV101 Focus dial
D201 Camera recording/battery lamp
IC201 Front Remote sensor
S105 RESET button
S109 TIME (NEXT) button
S115 DATE (+) button
RE-22 BOARD
IC201 REMOTE CONTROL RECEIVER (FRONT)
FRONT TALLY
TO VC-129 BOARD (VIDEO 3 BLOCK) (See Page 126)
TO VC-129 BOARD (VIDEO 2 BLOCK) (See Page 121)
TO VC-129 BOARD (VIDEO 3 BLOCK) (See Page 127)
TO VC-129 BOARD (VIDEO 3 BLOCK) (See Page 128)
TO VC-129 BOARD (VIDEO 1 BLOCK) (See Page 119)
TO VC-129 BOARD (CAMERA 1 BLOCK) (See Page 96)

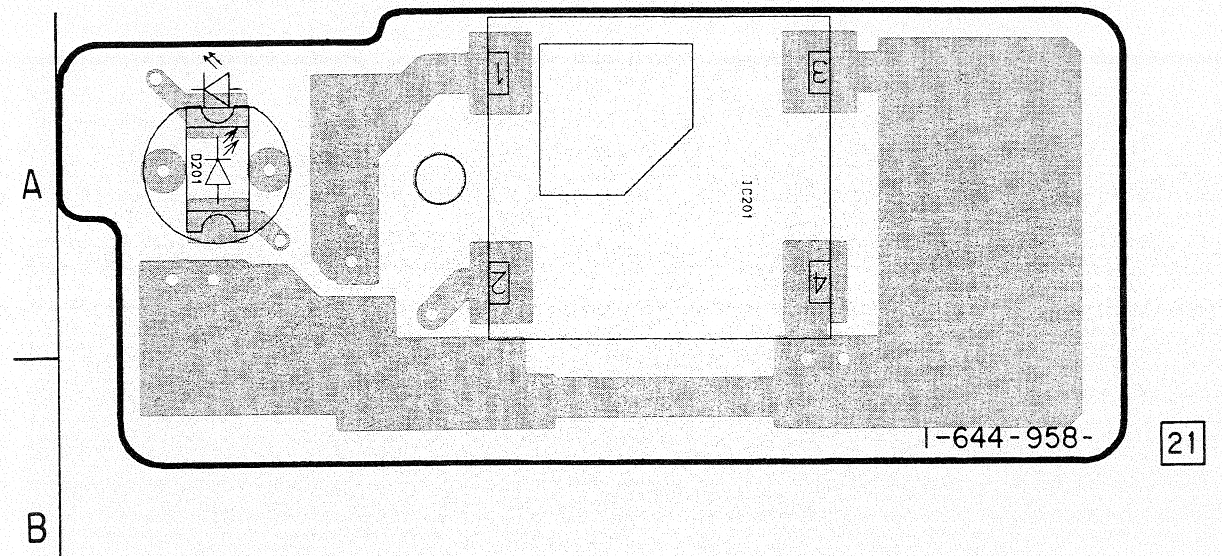
SYSTEM CONTROL SYSTEM CONTROL

RE-22 (FRONT REMOTE CONTROL RECEIVER), RE-23 (REAR REMOTE CONTROL RECEIVER) PRINTED WIRING BOARDS

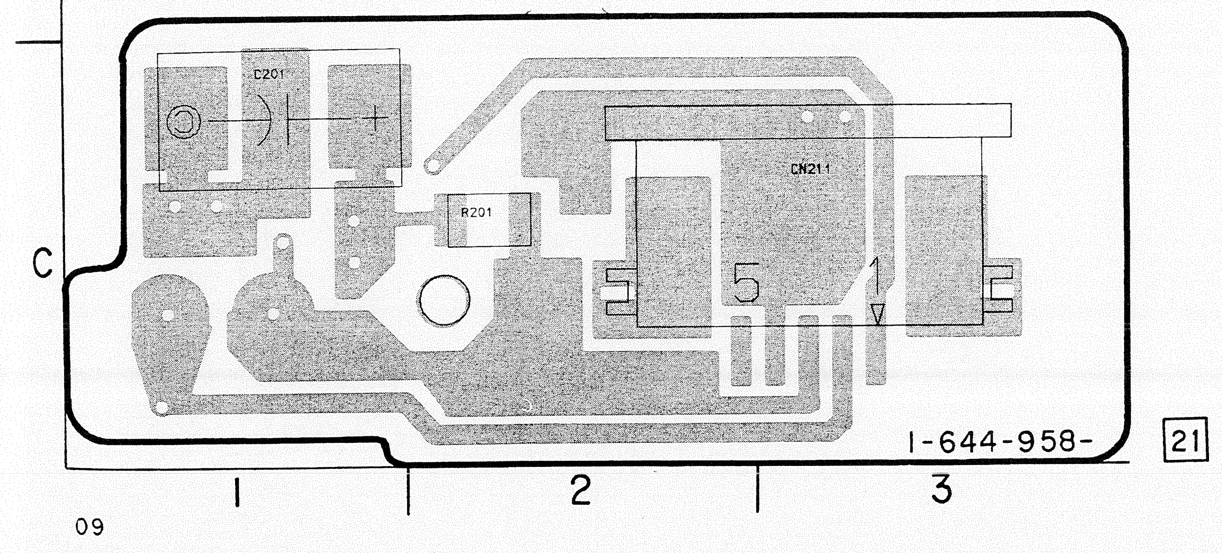
— Ref. No. RE-22, RE-23 BOARDS: 4000 series —

- Refer to page **108** for Printed Wiring Board on the VC-129, DB-10 boards.
- CF-33, FK-33 boards are replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.
- Resistors and capacitors are displayed in red.

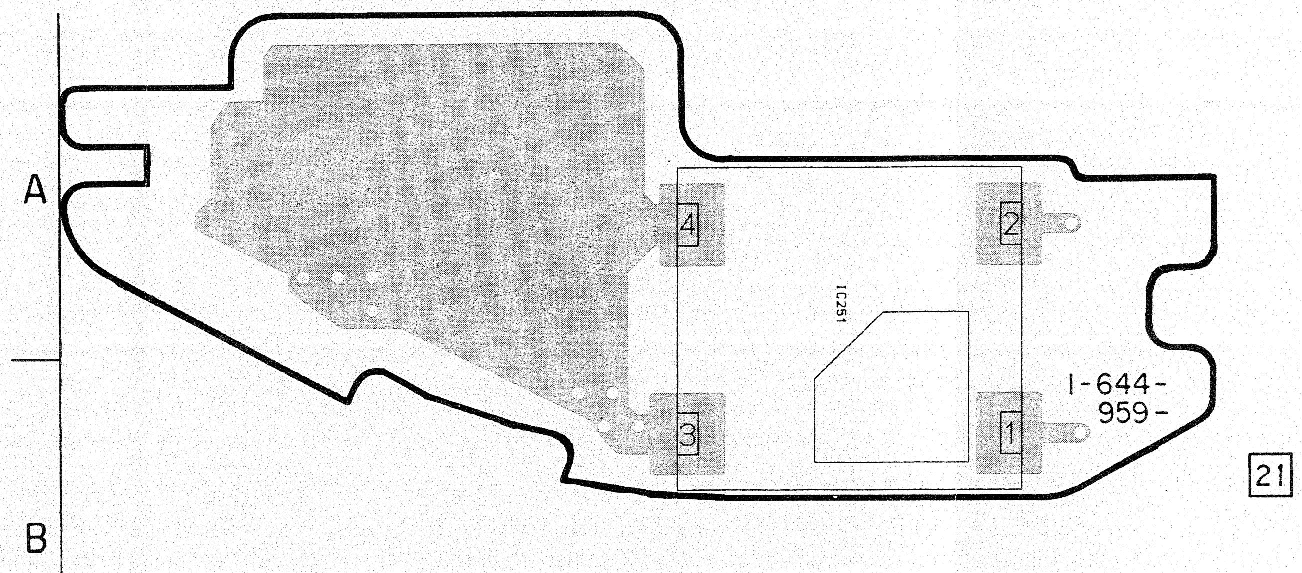
RE-22 BOARD (COMPONENT SIDE)


A
B
D201
IC201
1
2
3
4
1-644-958-
21

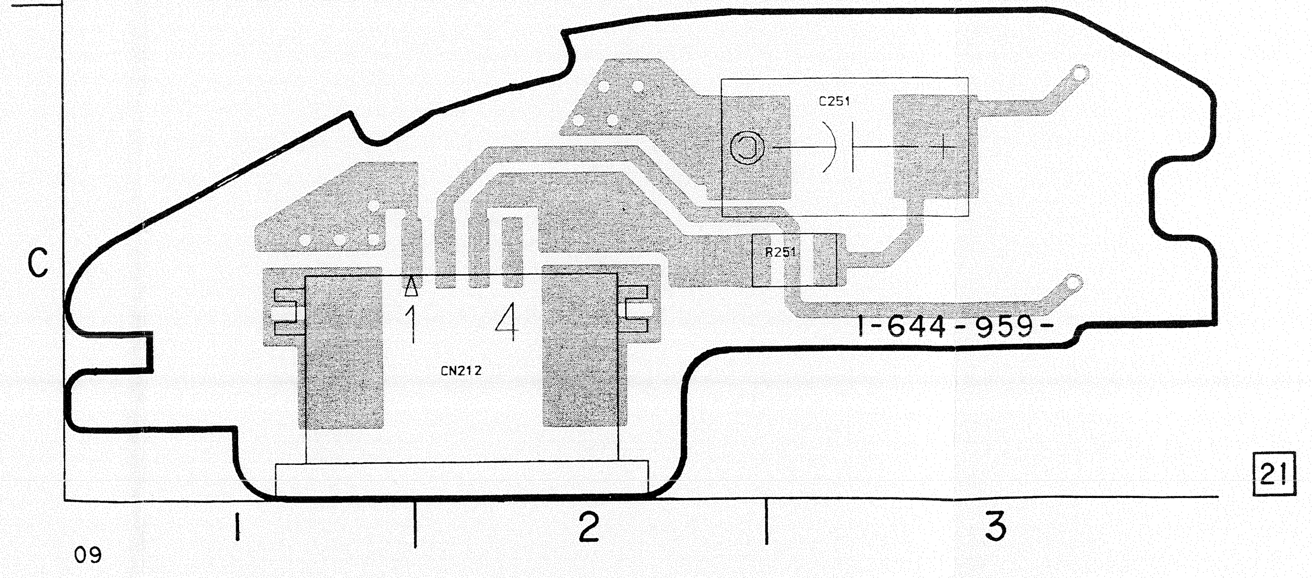
RE-22 BOARD (CONDUCTOR SIDE)


C
C201
R201
CN211
5
1
1-644-958-
21
1
2
3
09

RE-23 BOARD (COMPONENT SIDE)


A
B
IC251
1
2
3
4
1-644-959-
21

RE-23 BOARD (CONDUCTOR SIDE)


C
C251
R251
1
4
CN212
1-644-959-
21
1
2
3
09

AU-146 (AFM AUDIO) PRINTED WIRING BOARD

— Ref. No. AU-146 BOARD: 3000 series —

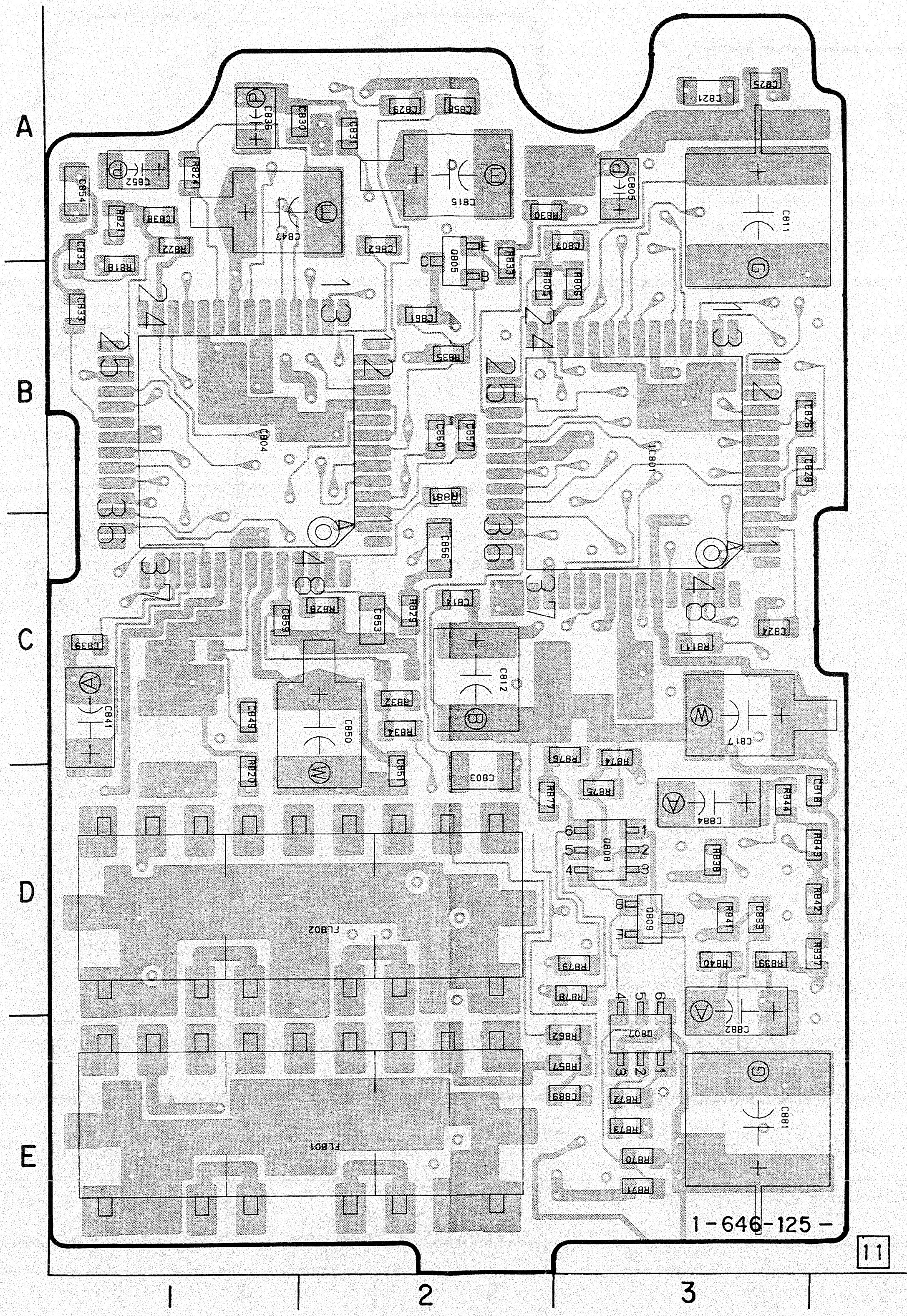
- Refer to page 157 for Schematic Diagram.

- JACK board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

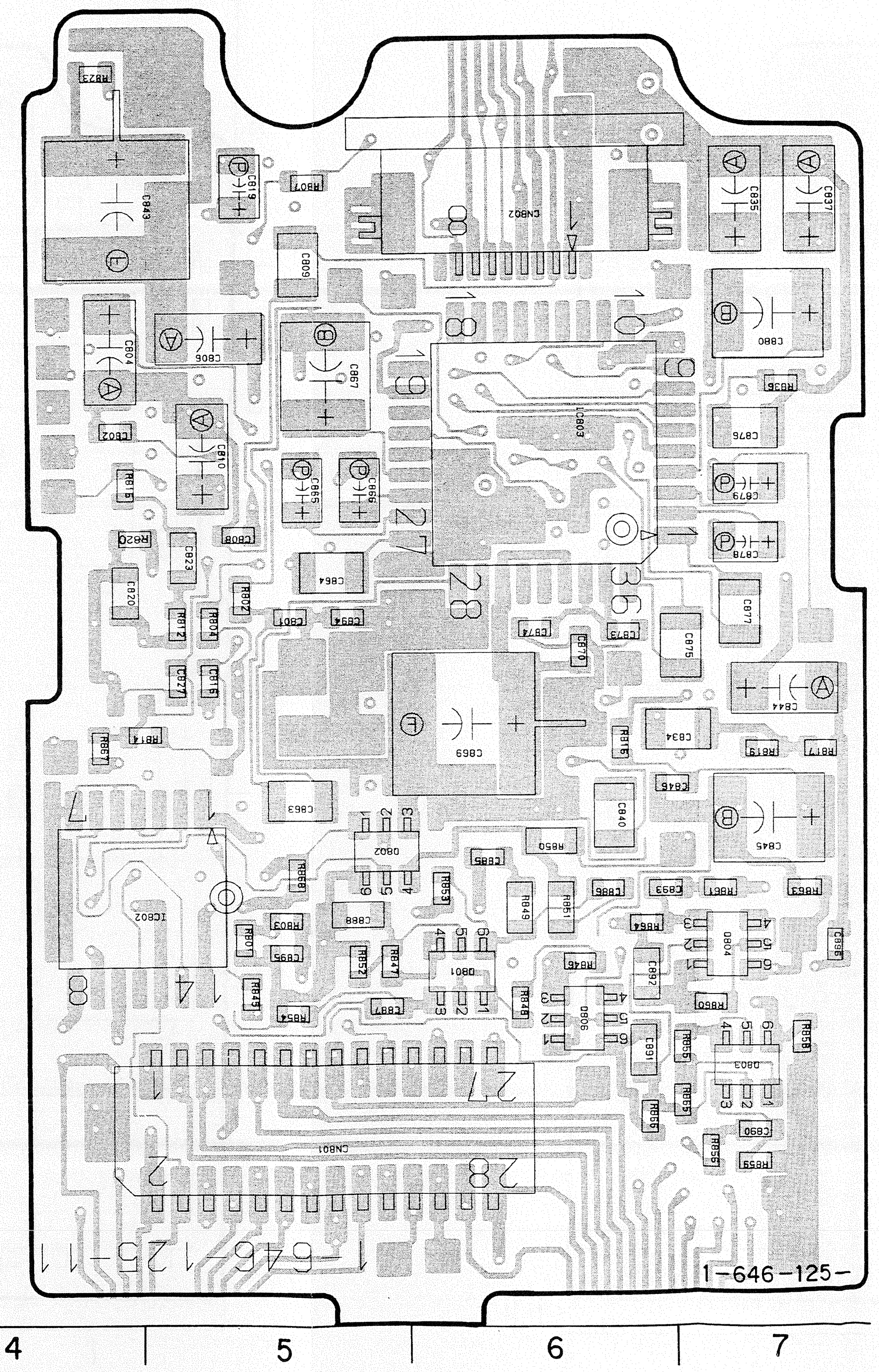
- **For printed wiring boards**
- AU-146 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

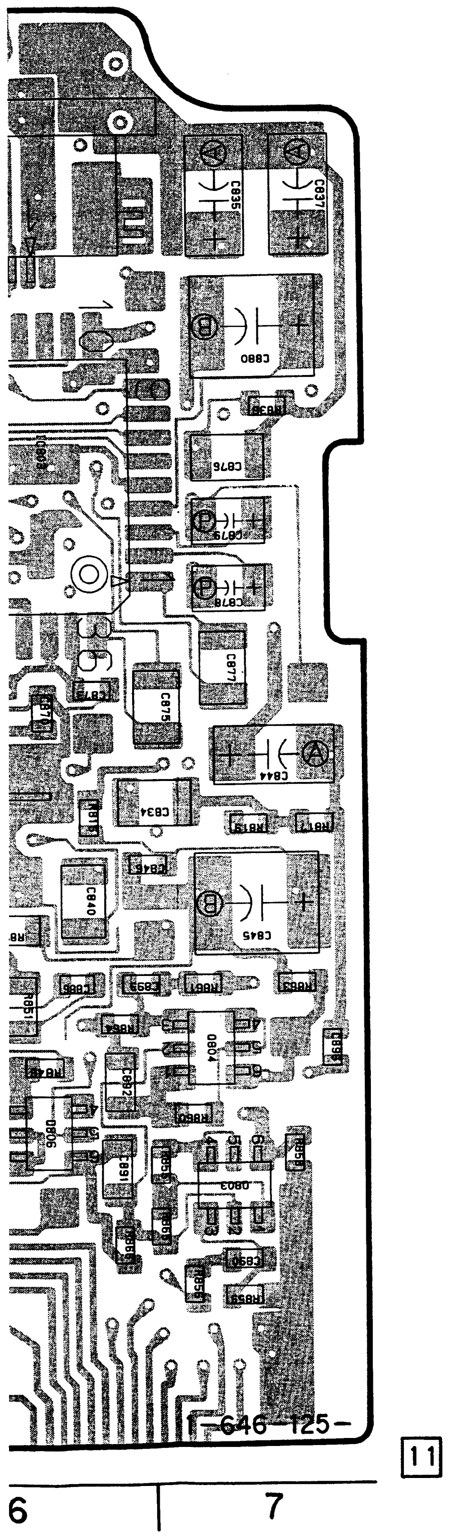
AU-146 BOARD (COMPONENT SIDE)


A
B
C
D
E
1
2
3
IC804
IC801
FL802
FL801
1-646-125 -
11

AU-146 BOARD (CONDUCTOR SIDE)

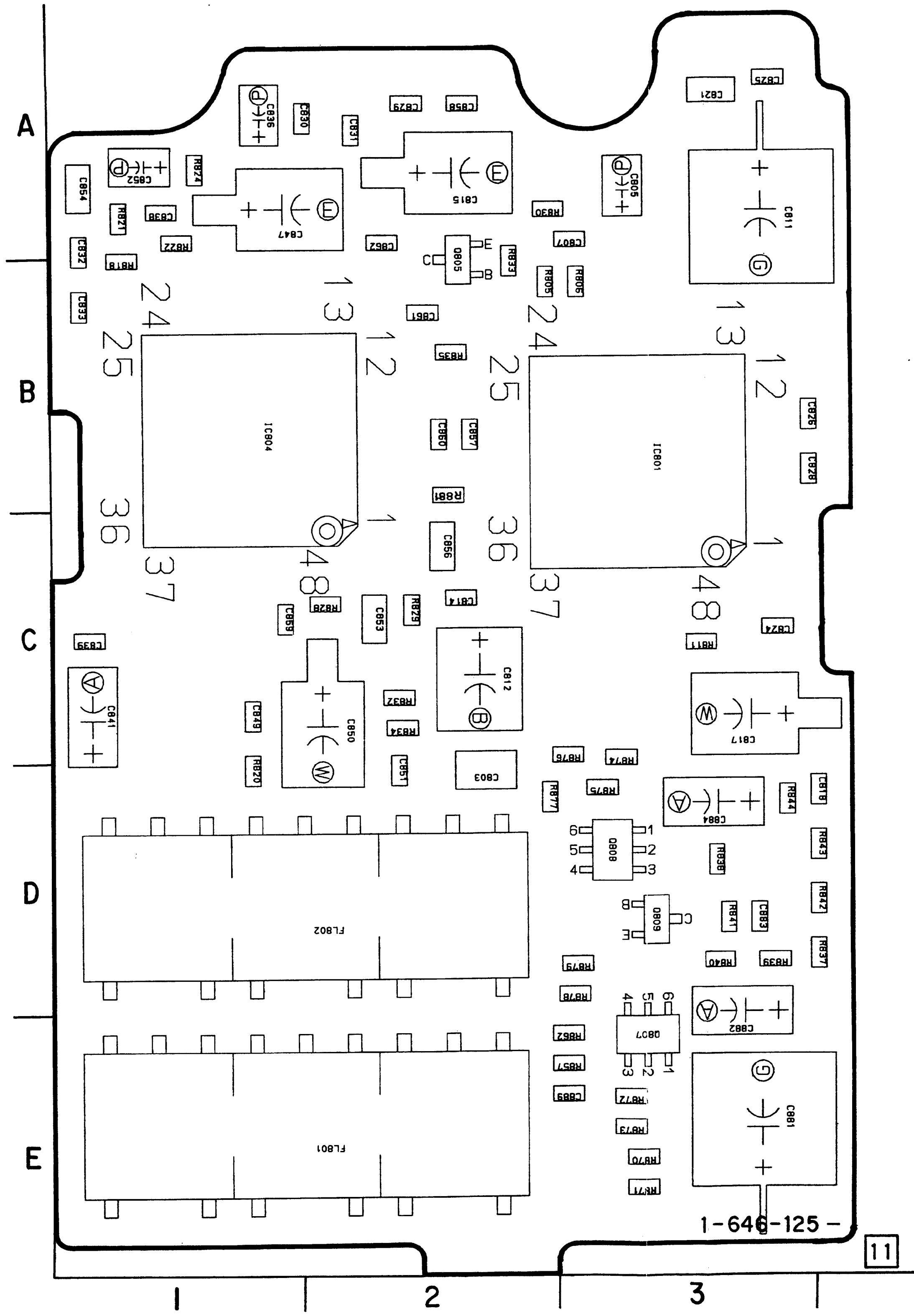

4
5
6
7
IC803
IC802
CN801
CN802
1-646-125-

SIDE)



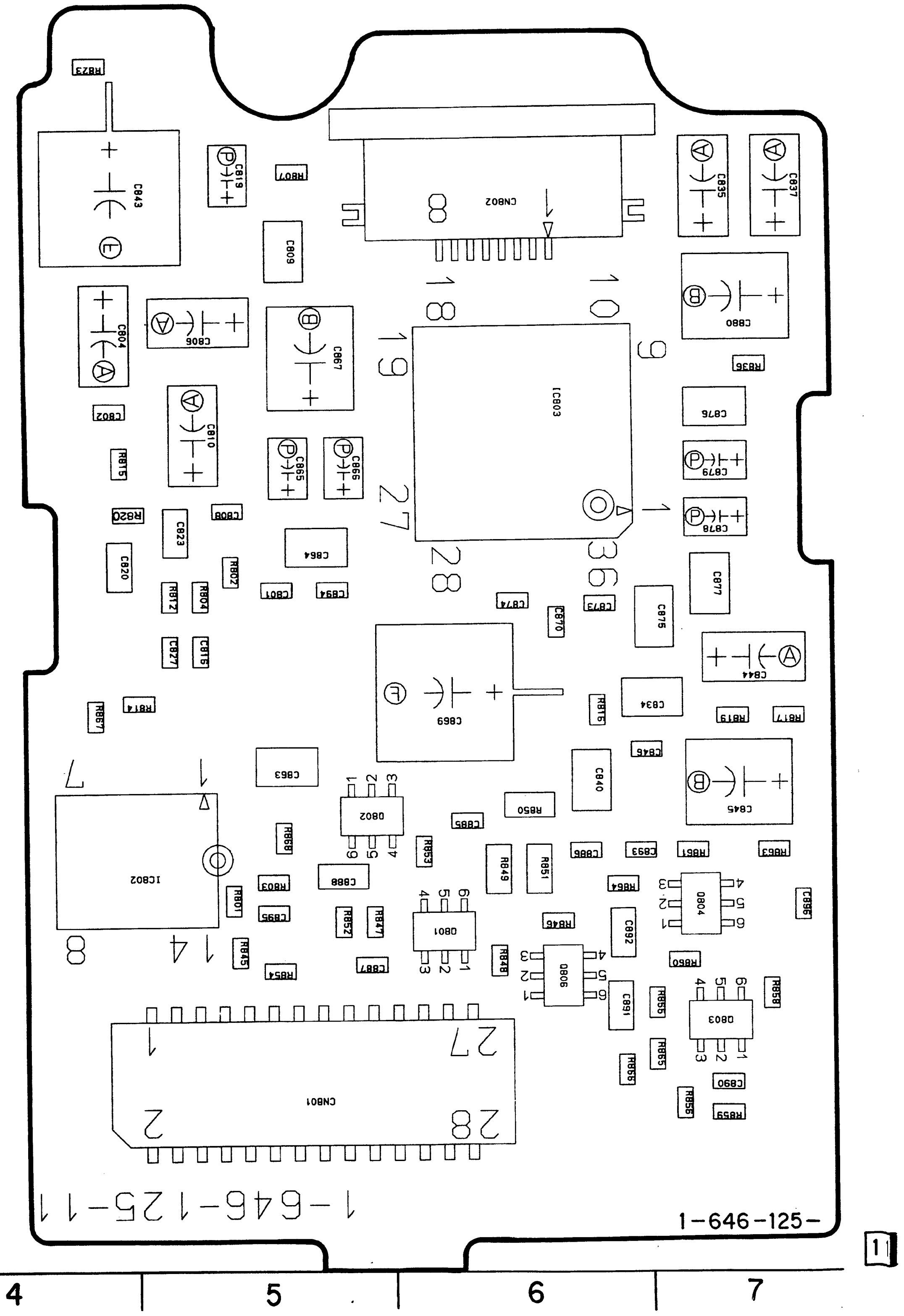
C835
C837
C880
C876
C879
C878
C877
C875
C844
C834
C840
C845
Q804
Q803
646-125-
11
6
7

AU-146 BOARD (COMPONENT SIDE)



A
B
C
D
E
IC804
IC801
FL802
FL801
C847
C815
C811
C850
C812
C817
C841
C884
C882
C881
Q805
Q808
Q809
Q807
C803
1-646-125-
11
1
2
3

AU-146 BOARD (CONDUCTOR SIDE)



CN802
IC803
IC802
CN801
C843
C804
C806
C867
C810
C869
C835
C837
C880
C844
C845
Q801
Q802
Q803
Q804
Q806
1-646-125-11
1-646-125-
11
4
5
6
7

MA-164 (MIC AMP) PRINTED WIRING BOARD

— Ref. No. MA-164 BOARD: 5000 series —

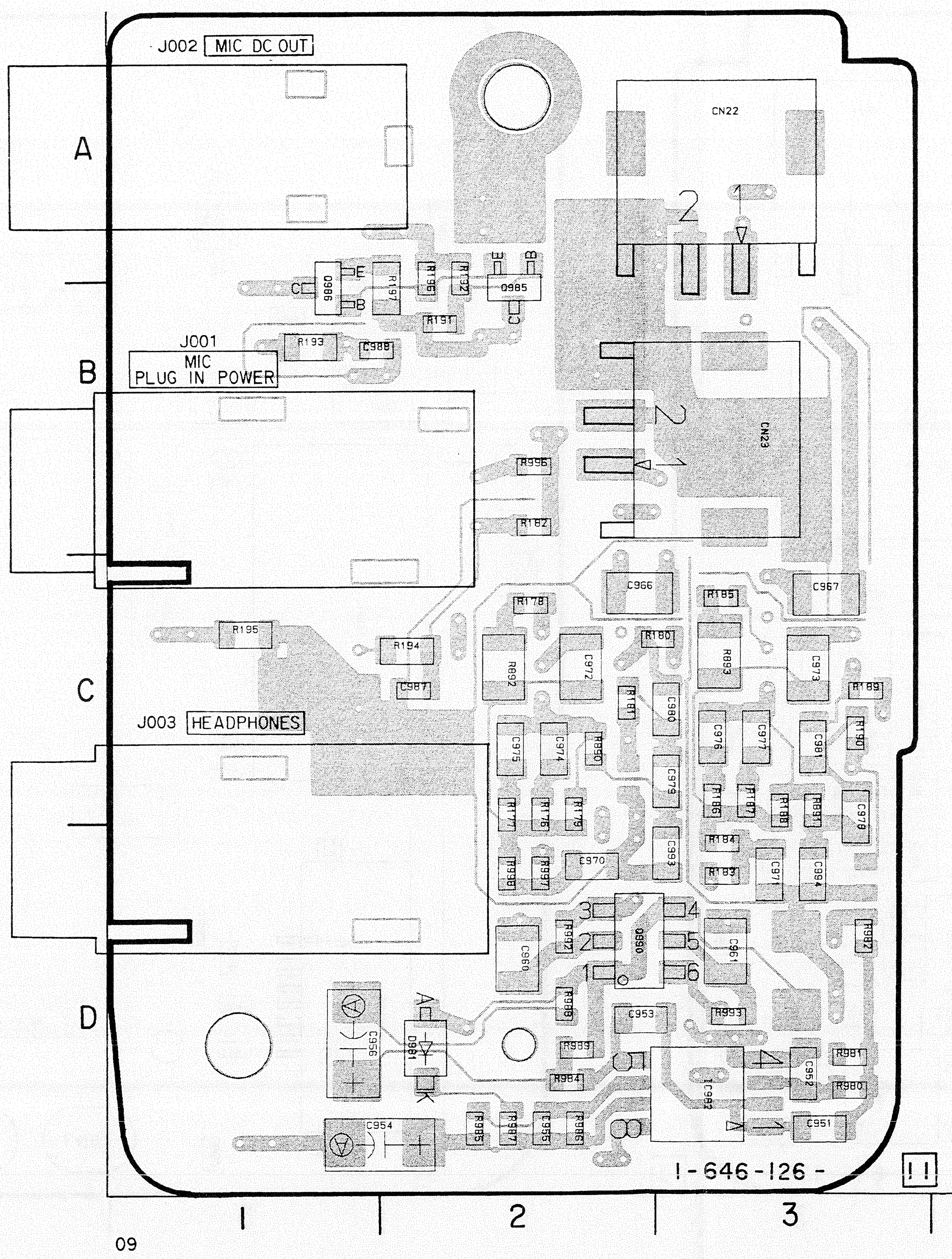
- Refer to page 157 for Schematic Diagram.

- JACK board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

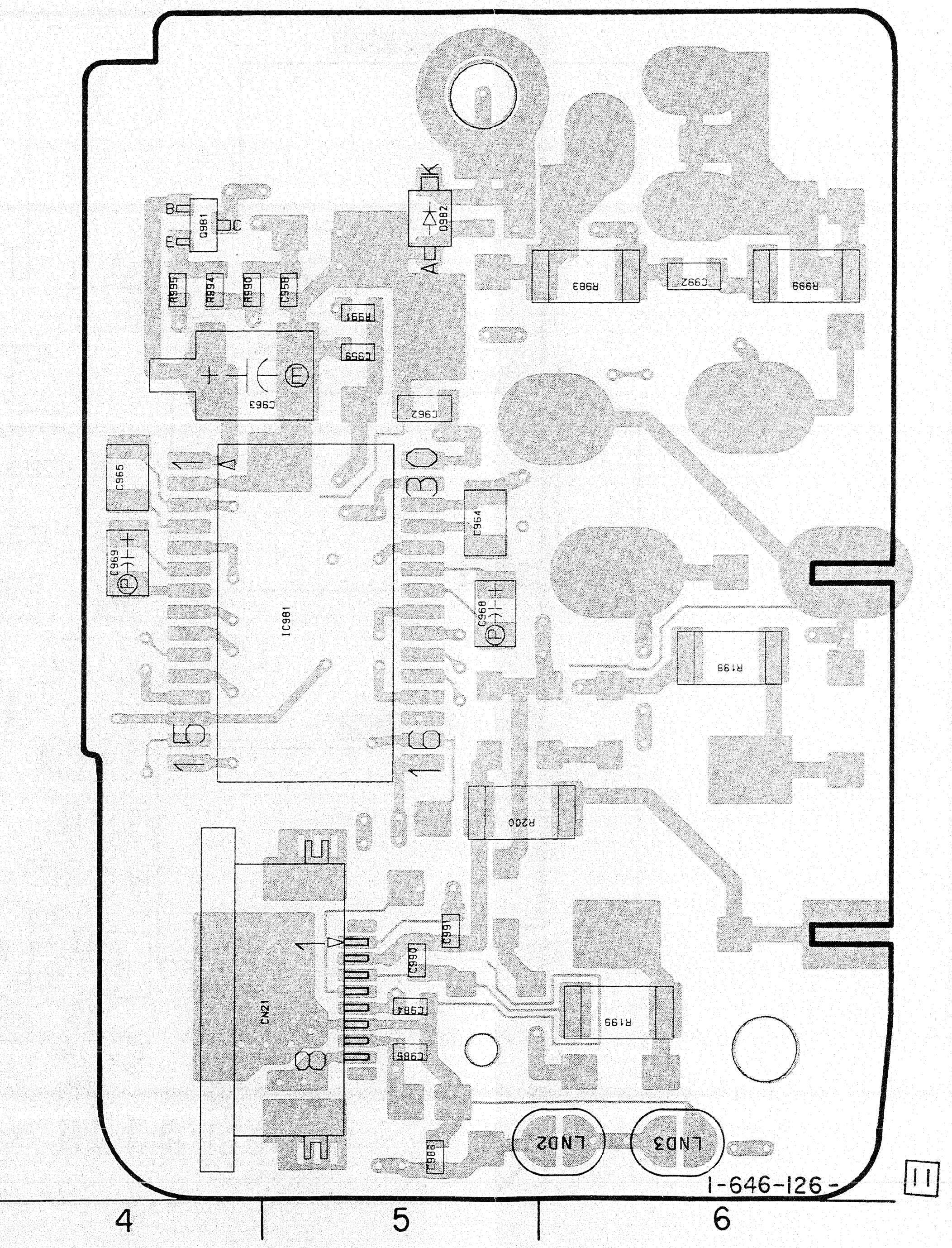
- **For printed wiring boards**
- MA-164 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

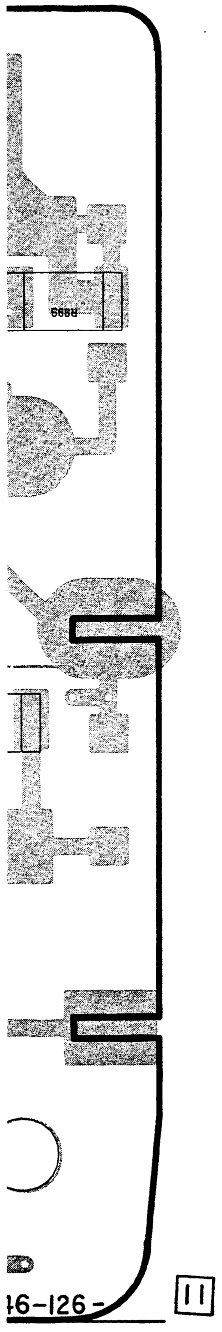
Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

MA-164 BOARD (COMPONENT SIDE)

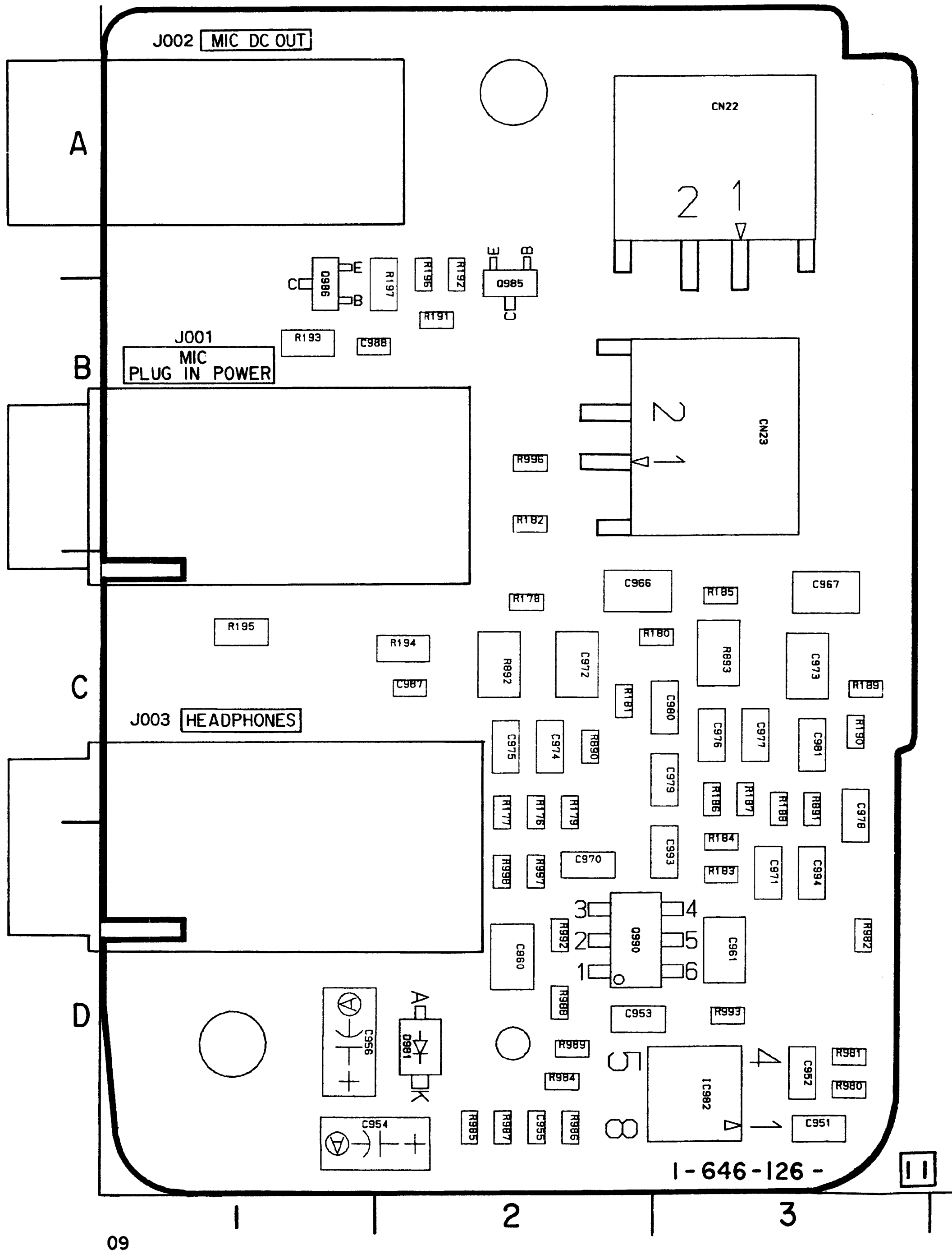

J002 MIC DC OUT
J001 MIC PLUG IN POWER
J003 HEADPHONES
A
B
C
D
1
2
3
09
CN22
CN23
Q960
Q985
Q950
Q951
Q952
IC952
R193
R195
R194
R178
R185
R180
R181
R183
R184
R892
R893
R956
R162
C588
C966
C967
C972
C973
C980
C987
C975
C974
C976
C977
C981
C979
C970
C993
C971
C994
C960
C961
C953
C954
C956
C951
C952
1-646-126-
11

MA-164 BOARD (CONDUCTOR SIDE)

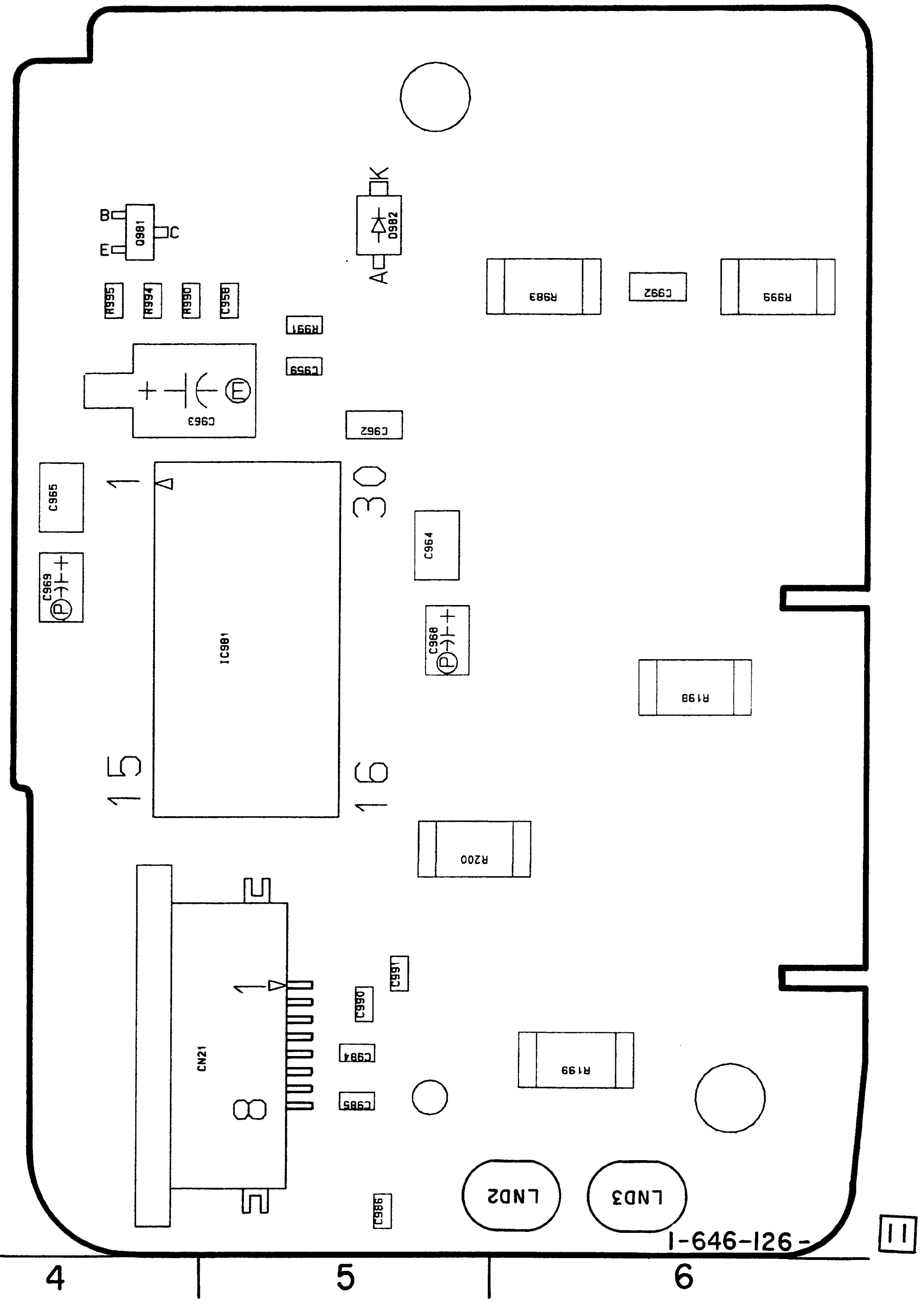

4
5
6
Q981
Q982
IC981
CN21
R993
R995
R199
R200
C992
C962
C963
C964
C965
C968
C969
LND2
LND3
1
15
16
30
1-646-126-
11



MA-164 BOARD (COMPONENT SIDE)


J002 MIC DC OUT
A
B
C
D
J001 MIC PLUG IN POWER
J003 HEADPHONES
CN22
CN23
IC981
IC982
Q985
Q986
Q990
D981
C956
C954
1-646-126-
11
1
2
3
09

MA-164 BOARD (CONDUCTOR SIDE)


Q981
D982
IC981
CN21
C963
R199
R200
R983
R999
LND2
LND3
1
15
16
30
1-646-126-
11
4
5
6

EZ-3 (EASY CONNECTOR, CHARGING CONTROL) PRINTED WIRING BOAR

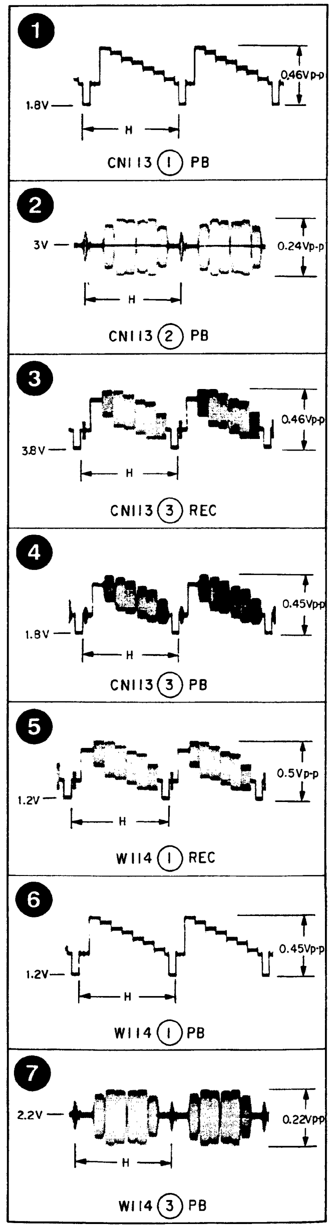
— Ref. No. EZ-3 BOARD: 3000 series —

- JACK board is replaced as blocks, so that there PRINTED WIRING BOARDS are omitted.

- **For printed wiring boards**
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

EZ-3 BOARD



CONTROL) PRINTED WIRING BOARD

- Refer to page 145 for Printed Wiring Board on the AU-146 board, page 149 for Printed Wiring Board on the MA-164 board.

here PRINTED

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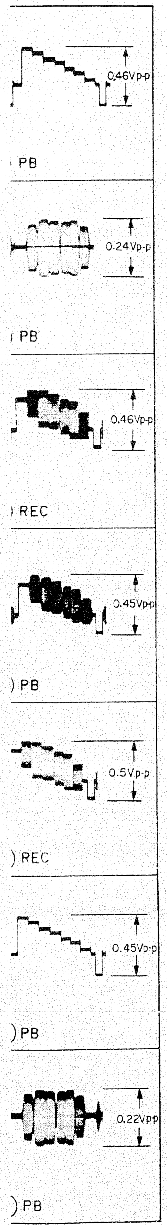
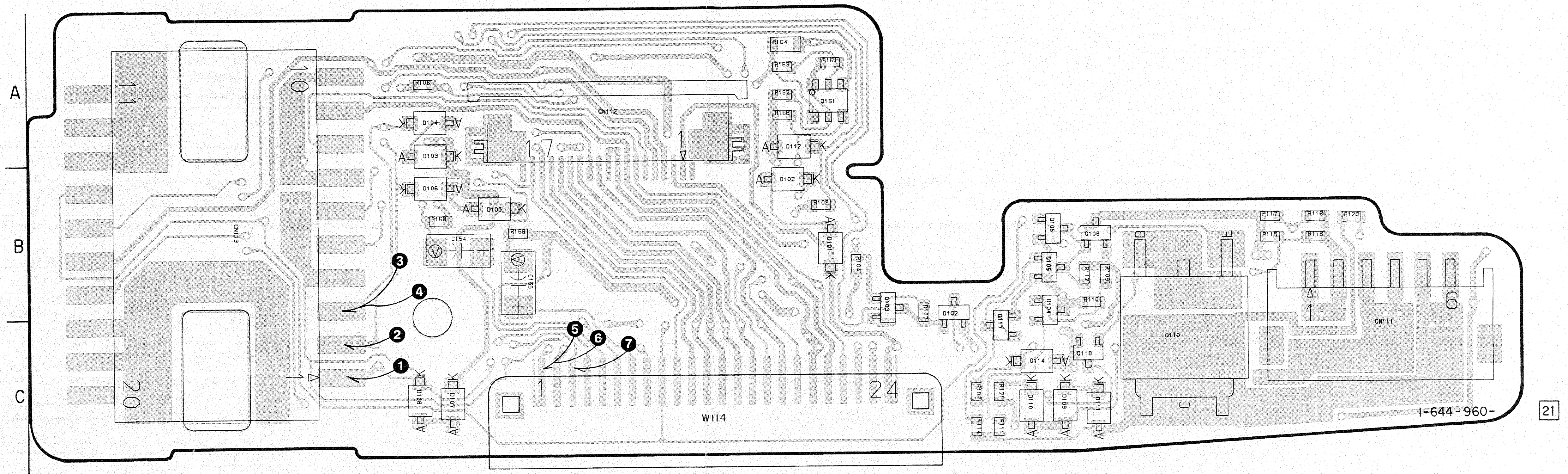
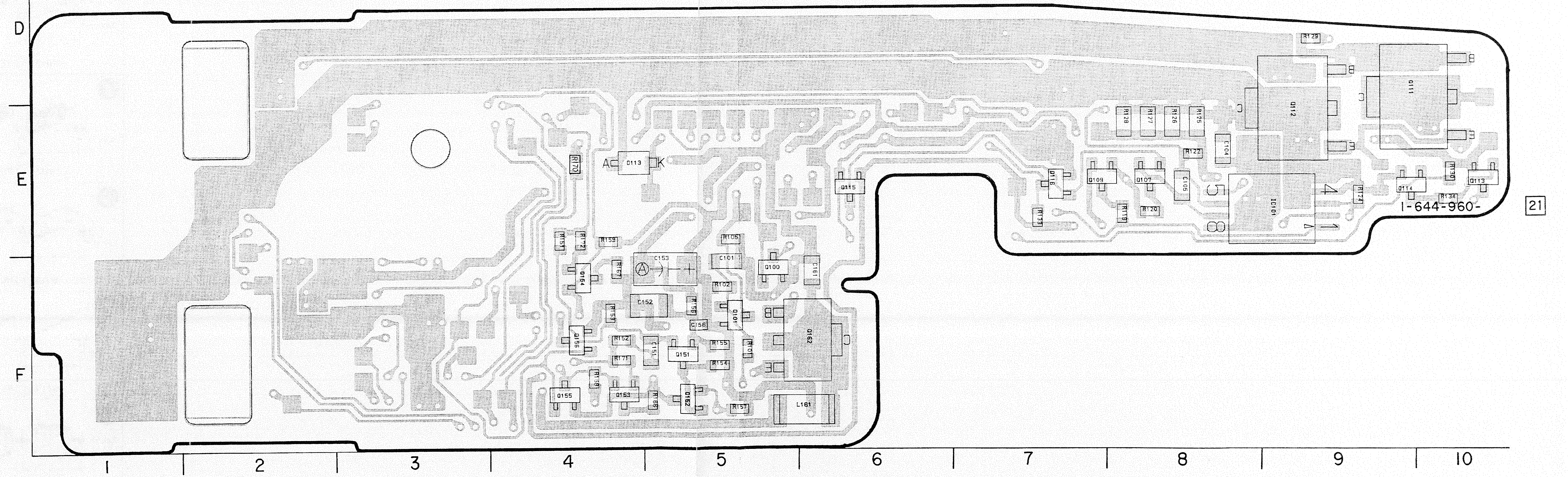


EZ-3 BOARD (COMPONENT SIDE)


A
B
C
CN112
CN113
CN111
W114
1
24
1
20
10
11
17
6
Q151
Q112
Q102
Q105
Q103
Q104
Q106
Q107
Q108
Q109
Q110
Q111
Q114
Q118
C154
C155
1-644-960-
21

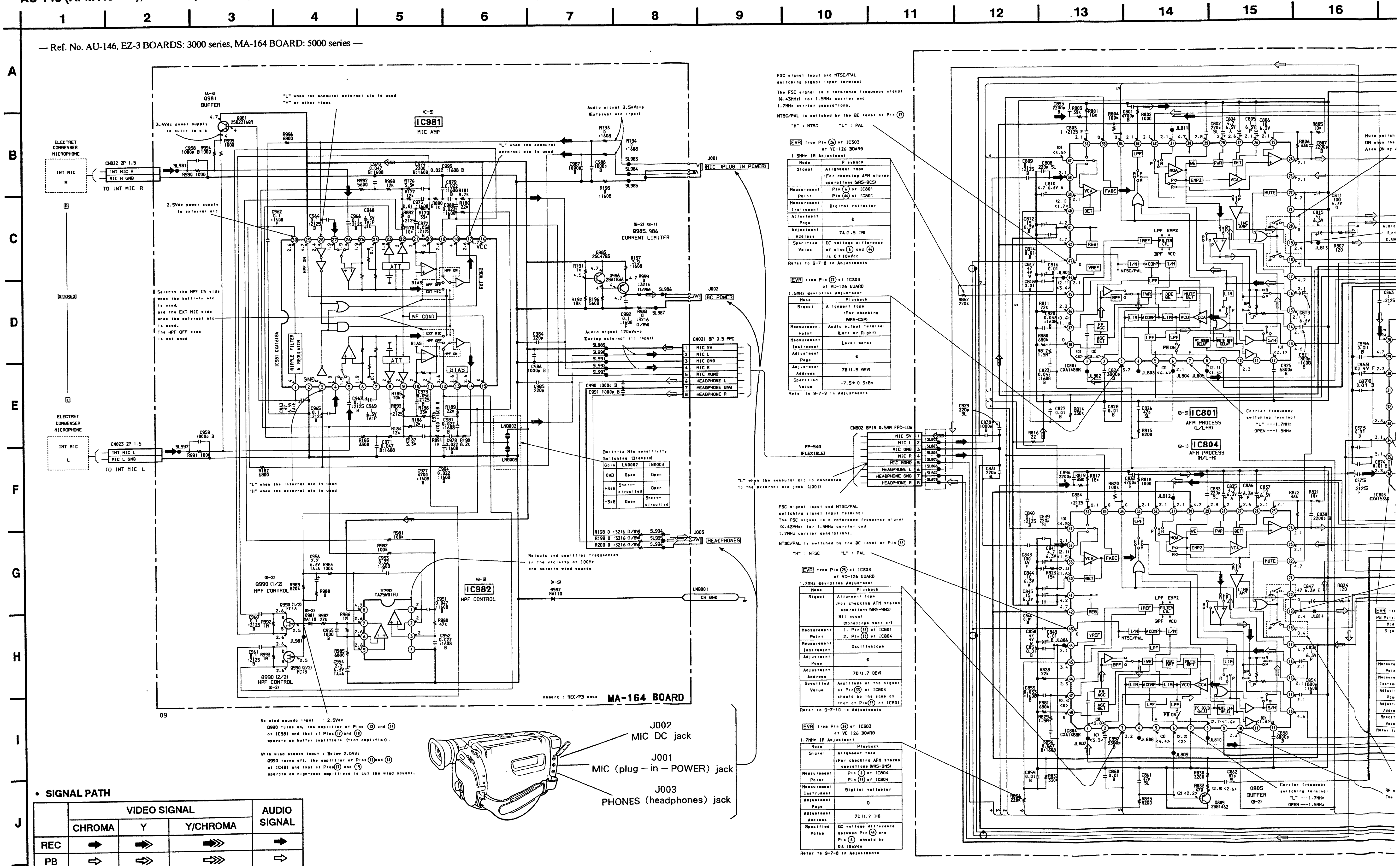
EZ-3 BOARD (CONDUCTOR SIDE)


D
E
F
1
2
3
4
5
6
7
8
9
10
Q111
Q112
Q113
Q114
Q115
Q100
IC101
C153
C152
C101
L161
1-644-960-
21

AU-146 (AFM AUDIO), MA-164 (MIC AMP), EZ-3 (EASY CONNECTOR, CHARGING CONTROL), JACK BOARD (VIDEO, AUDIO OUT) SCHEMATIC DIAGRAMS

• Refer to page 145 for Printed Wiring Board on the AU-146 board, page 149 for Printed Wiring Boa

— Ref. No. AU-146, EZ-3 BOARDS: 3000 series, MA-164 BOARD: 5000 series —


1
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11
12
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14
15
16
A
B
C
D
E
F
G
H
I
J
ELECTRET CONDENSER MICROPHONE
INT MIC R
R
STEREO
ELECTRET CONDENSER MICROPHONE
INT MIC L
CN022 2P 1.5
INT MIC R
MIC R GND
TO INT MIC R
CN023 2P 1.5
INT MIC L
MIC L GND
TO INT MIC L
(A-4) Q981 BUFFER
3.4Vdc power supply to built-in mic
2.5Vdc power supply to external mic
"L" when the monaural external mic is used
"H" at other times
IC981 MIC AMP
IC981 CXA1618A
RIPPLE FILTER & REGULATOR
HPF ON
EXT MONO
ATT
BIAS
NF CONT
EXT MIC
GND
VCC
Selects the HPF ON side when the built-in mic is used, and the EXT MIC side when the external mic is used. The HPF OFF side is not used
"L" when the internal mic is used
"H" when the external mic is used
Audio signal 3.5mVp-p (External mic input)
J001 MIC (PLUG IN POWER)
Q985, 986 CURRENT LIMITER
J002 DC POWER
Audio signal 120mVp-p (During external mic input)
CN021 8P 0.5 FPC
MIC 5V
MIC L
MIC GND
MIC R
MIC MONO
HEADPHONE L
HEADPHONE GND
HEADPHONE R
LN0002
LN0003
J003 HEADPHONES
Selects and amplifies frequencies in the vicinity of 100Hz and detects wind sounds
IC982 HPF CONTROL
IC982 TA75W01FU
Q990 (1/2) HPF CONTROL
Q990 (2/2) HPF CONTROL
LN0001 CH GND
remark : REC/PB mode
MA-164 BOARD
J002 MIC DC jack
J001 MIC (plug – in – POWER) jack
J003 PHONES (headphones) jack
CN802 8PIN 0.5MM FPC-LOW
FP-540 (FLEXIBLE)
"L" when the monaural mic is connected to the external mic jack (J001)
IC801 AFM PROCESS (L/L+R)
IC804 AFM PROCESS (R/L-R)
IC801 CXA1488R
IC804 CXA1488R
LPF
EMP2
BPF
VCO
FADE
VCA
LINE AMP
MUTE
NTSC/PAL
Carrier frequency switching terminal "L" ---1.7MHz OPEN ---1.5MHz
Q805 BUFFER
Mute switch ON when the

Built-in Mic sensitivity Switching (3levels)

Gain	LN0002	LN0003
0dB	Open	Open
+3dB	Short-circuited	Open
-3dB	Open	Short-circuited

No wind sounds input : 2.5Vdc
Q990 turns on, the amplifier of Pins ⑫ and ⑭ of IC981 and that of Pins ⑰ and ⑲ operate as buffer amplifiers (flat amplifier).

With wind sounds input : Below 2.0Vdc
Q990 turns off, the amplifier of Pins ⑫ and ⑭ of IC481 and that of Pins ⑰ and ⑲ operate as high-pass amplifiers to cut the wind sounds.

FSC signal input and NTSC/PAL switching signal input terminal

The FSC signal is a reference frequency signal (4.43MHz) for 1.5MHz carrier and 1.7MHz carrier generations.

NTSC/PAL is switched by the DC level of Pin ㊸

"H" : NTSC "L" : PAL

EVR from Pin ㉖ of IC303 of VC-126 BOARD

1.5MHz IR Adjustment

Mode	Playback
Signal	Alignment tape :For checking AFM stereo operations (WR5-9CS)
Measurement Point	Pin ⑥ of IC801 Pin ㊹ of IC801
Measurement Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7A (1.5 IR)
Specified Value	DC voltage difference of pins ⑥ and ㊹ is 0 ± 10mVdc

Refer to 9-7-8 in Adjustments

EVR from Pin ㉗ of IC303 of VC-126 BOARD

1.5MHz Deviation Adjustment

Mode	Playback
Signal	Alignment tape :For checking (WR5-CSP)
Measurement Point	Audio output terminal (Left or Right)
Measurement Instrument	Level meter
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	-7.5± 0.5dBs

Refer to 9-7-9 in Adjustments

FSC signal input and NTSC/PAL switching signal input terminal

The FSC signal is a reference frequency signal (4.43MHz) for 1.5MHz carrier and 1.7MHz carrier generations.

NTSC/PAL is switched by the DC level of Pin ㊸

"H" : NTSC "L" : PAL

EVR from Pin ㉕ of IC303 of VC-126 BOARD

1.7MHz Deviation Adjustment

Mode	Playback
Signal	Alignment tape :For checking AFM stereo operations (WR5-9NS) Bilingual (Monoscope section)
Measurement Point	1. Pin ㉝ of IC801 2. Pin ㉝ of IC804
Measurement Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7D (1.7 DEV)
Specified Value	Amplitude of the signal of Pin ㉝ of IC804 should be the same as that of Pin ㉝ of IC801

Refer to 9-7-10 in Adjustments

EVR from Pin ㉔ of IC303 of VC-126 BOARD

1.7MHz IR Adjustment

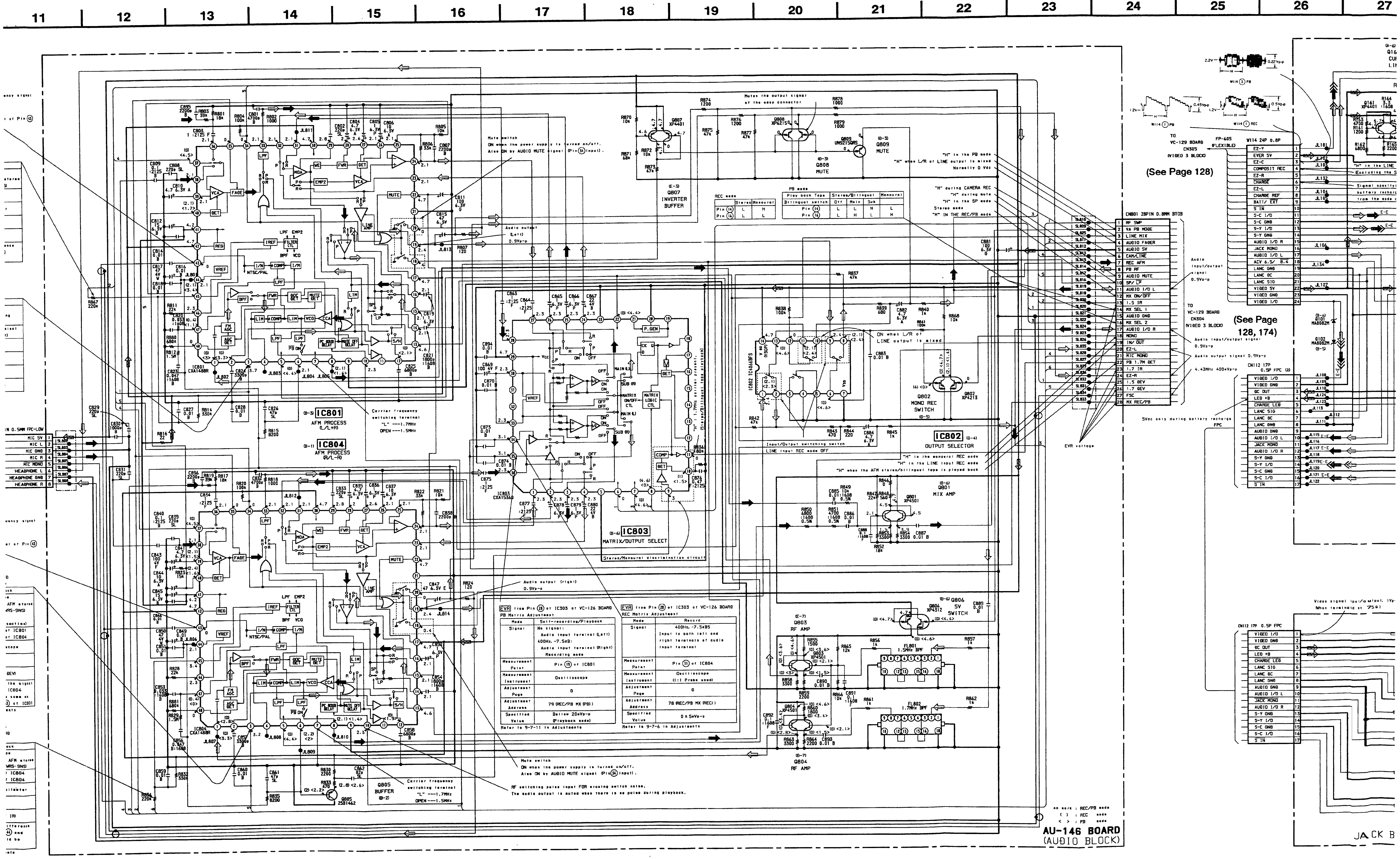
Mode	Playback
Signal	Alignment tape :For checking AFM stereo operations (WR5-9NS)
Measurement Point	Pin ⑥ of IC804 Pin ㊹ of IC804
Measurement Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7C (1.7 IR)
Specified Value	DC voltage difference between Pin ㊹ and Pin ⑥ should be 0± 10mVdc

Refer to 9-7-8 in Adjustments

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

- Refer to page 145 for Printed Wiring Board on the AU-146 board, page 149 for Printed Wiring Board on the MA-164 board.


11
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19
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22
23
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25
26
27
IC801
AFM PROCESS
(L/L+R)
IC804
AFM PROCESS
(R/L-R)
IC803
MATRIX/OUTPUT SELECT
IC802
OUTPUT SELECTOR
Q807
INVERTER
BUFFER
Q808
MUTE
Q809
MUTE
Q802
MONO REC
SWITCH
Q801
MIX AMP
Q806
5V
SWITCH
Q803
RF AMP
Q804
RF AMP
Q805
BUFFER
FL801
1.5MHz BPF
FL802
1.7MHz BPF
Mute switch
ON when the power supply is turned on/off.
Also ON by AUDIO MUTE signal (Pin ㉞ input).
Mutes the output signal of the easy connector
Audio output (left)
0.9Vp-p
Audio output (right)
0.9Vp-p
Carrier frequency switching terminal
"L" ---1.7MHz
OPEN---1.5MHz
ON when L/R of LINE output is mixed
Stereo/Monaural discrimination circuit
RF switching pulse input FOR erasing switch noise.
The audio output is muted when there is no pulse during playback.
CN801 28PIN 0.8MM BTOB
1 RF SWP
2 VA PB MODE
3 LINE MIX
4 AUDIO FADER
5 AUDIO 5V
6 CAM/LINE
7 REC AFM
8 PB RF
9 AUDIO MUTE
10 SP/LP
11 AUDIO I/O L
12 MX ON/OFF
13 1.5 IR
14 MX SEL 1
15 AUDIO GND
16 MX SEL 2
17 AUDIO I/O R
18 MONO
19 IN/OUT
20 EZ-L
21 MIC MONO
22 PB 1.7M DET
23 1.7 IR
24 EZ-R
25 1.5 DEV
26 1.7 DEV
27 FSC
28 MX REC/PB
TO
VC-129 BOARD
CN305
(VIDEO 3 BLOCK)
(See Page 128)
TO
VC-129 BOARD
CN304
(VIDEO 3 BLOCK)
(See Page 128, 174)
Audio input/output signal
0.9Vp-p
4.43MHz 400mVp-p
5Vdc only during battery recharge
EVR voltage
IN 0.5MM FPC-LOW
MIC 5V
MIC L
MIC GND
MIC R
MIC MONO
HEADPHONE L
HEADPHONE GND
HEADPHONE R
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
AU-146 BOARD
(AUDIO BLOCK)
JACK B

EVR from Pin ㉘ of IC303 of VC-126 BOARD
PB Matrix Adjustment

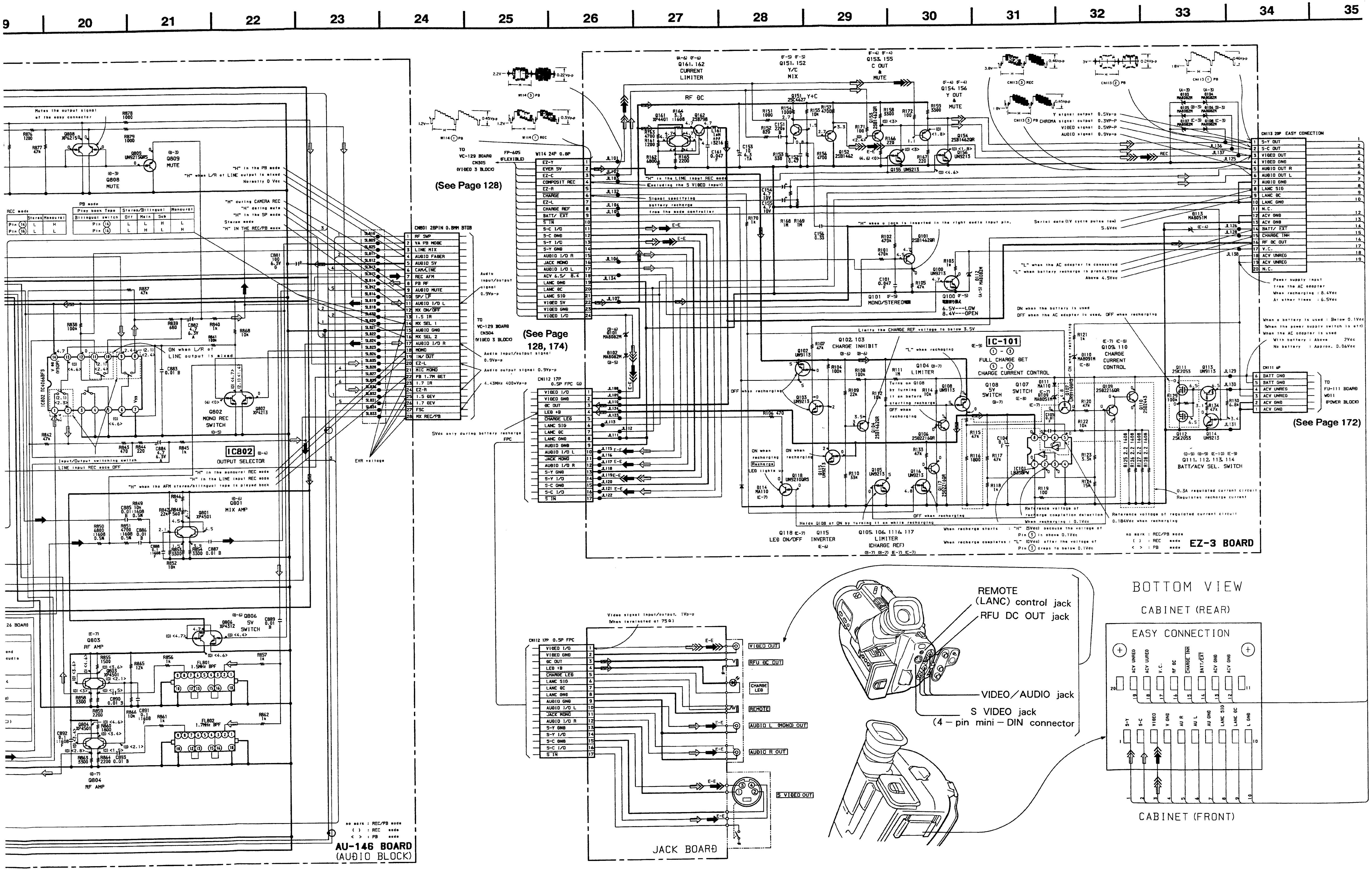
Mode	Self-recording/Playback
Signal	No signal: Audio input terminal (Left) 400Hz, -7.5dB: Audio input terminal (Right) Recording mode
Measurement Point	Pin ⑲ of IC801
Measurement Instrument	Oscilloscope
Adjustment Page	0
Adjustment Address	79 (REC/PB MX (PB))
Specified Value	Below 20mVp-p (Playback mode)

Refer to 9-7-11 in Adjustments

EVR from Pin ㉘ of IC303 of VC-126 BOARD
REC Matrix Adjustment

Mode	Record
Signal	400Hz, -7.5dBS Input to both left and right terminals of audio input terminal
Measurement Point	Pin ㉛ of IC804
Measurement Instrument	Oscilloscope (1:1 Probe used)
Adjustment Page	0
Adjustment Address	78 (REC/PB MX (REC))
Specified Value	0 ± 5mVp-p

Refer to 9-7-6 in Adjustments


9
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34
35
Mutes the output signal of the easy connector
Q808 MUTE
Q809 UN9215DRS MUTE
"H" in the PB mode
"H" when L/R of LINE output is mixed
Normally 0 Vcc
"H" during CAMERA REC
"H" during auto
"H" in the SP mode
Stereo mode
"H" IN THE REC/PB mode
IC802 TC4066BFN
Q802 MONO REC SWITCH
ON when L/R of LINE output is mixed
IC802 OUTPUT SELECTOR
Input/Output switching switch
LINE input REC mode OFF
"H" in the monaural REC mode
"H" in the LINE input REC mode
"H" when the AFM stereo/bilingual tape is played back
Q801 MIX AMP
Q806 5V SWITCH
Q803 RF AMP
Q804 RF AMP
FL801 1.5MHz BPF
FL802 1.7MHz BPF
EVR voltage
CN801 28PIN 0.8MM BTOB
RF SWP
YA PB MODE
LINE MIX
AUDIO FADER
AUDIO 5V
CAM/LINE
REC AFM
PB RF
AUDIO MUTE
SP/LP
AUDIO I/O L
MX ON/OFF
1.5 IR
MX SEL 1
AUDIO GND
MX SEL 2
AUDIO I/O R
MONO
IN/OUT
EZ-L
MIC MONO
PB 1.7M GET
1.7 IR
EZ-R
1.5 GEV
1.7 GEV
FSC
MX REC/PB
Audio input/output signal 0.9Vp-p
Audio input/output signal 0.9Vp-p
Audio output signal 0.9Vp-p
4.43MHz 400mVp-p
5Vdc only during battery recharge
FPC
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
AU-146 BOARD
(AUDIO BLOCK)
TO VC-129 BOARD CN305 (VIDEO 3 BLOCK)
FP-605 (FLEXIBLE)
W114 24P 0.8P
(See Page 128)
TO VC-129 BOARD CN304 (VIDEO 3 BLOCK)
(See Page 128, 174)
CN112 17P 0.5P FPC
EZ-Y
EVER 5V
EZ-C
COMPOSIT REC
EZ-R
CHARGE
EZ-L
CHARGE REF
BATT/ EXT
S IN
S-C I/O
S-C GND
S-Y I/O
S-Y GND
AUDIO I/O R
JACK MONO
AUDIO I/O L
ACV 6.5/ 8.4
LANC GND
LANC DC
LANC SIO
VIDEO 5V
VIDEO GND
VIDEO I/O
VIDEO I/O
VIDEO GND
DC OUT
LED +B
CHARGE LED
LANC SIO
LANC DC
LANC GND
AUDIO GND
AUDIO I/O L
JACK MONO
AUDIO I/O R
S-Y GND
S-Y I/O
S-C GND
S-C I/O
S IN
Q161, 162 CURRENT LIMITER
Q151, 152 Y/C MIX
Q153, 155 C OUT & MUTE
Q154, 156 Y OUT & MUTE
RF DC
Y signal output 0.5Vp-p
CHROMA signal output 0.3Vp-p
VIDEO signal 0.5Vp-p
AUDIO signal 0.9Vp-p
"H" in the LINE input REC mode
Excluding the S VIDEO input
Signal specifying battery recharge from the mode controller
"H" when a jack is inserted in the right audio input pin.
Serial data (1V cycle pulse low) 5.6Vdc
Q101 MONO/STEREO
Q100 6.5V---LOW 8.4V---OPEN
"L" when the AC adapter is connected
"L" when battery recharge is prohibited
Above 4.5Vdc
Power supply input from the AC adapter
When recharging : 8.4Vdc
At other times : 6.5Vdc
ON when the battery is used
OFF when the AC adapter is used, OFF when recharging
When a battery is used : Below 0.1Vdc
(When the power supply switch is off)
When the AC adapter is used
With battery : Above 2Vcc
No battery : Approx. 0.06Vdc
Limits the CHARGE REF voltage to below 3.5V
Q102, 103 CHARGE INHIBIT
"L" when recharging
IC-101
FULL CHARGE DET
CHARGE CURRENT CONTROL
Q104 LIMITER
Q108 5V SWITCH
Q107 SWITCH
Q109, 110 CHARGE CURRENT CONTROL
Turns on Q108 by turning it on before starting recharge
OFF when recharging
ON when recharging
Recharge LED lights up
OFF when recharging
Holds Q108 at ON by turning it on while recharging
Q118 LED ON/OFF
Q115 INVERTER
Q105, 106, 116, 117 LIMITER (CHARGE REF)
When recharge starts : "H" (5Vdc) because the voltage of Pin ⑤ is above 0.1Vdc
When recharge completes : "L" (0Vdc) after the voltage of Pin ⑤ drops to below 0.1Vdc
Reference voltage of recharge completion detection When recharging : 0.1Vdc
Reference voltage of regulated current circuit 0.184Vdc when recharging
0.3A regulated current circuit Regulates recharge current
Q111, 112, 113, 114 BATT/ACV SEL. SWITCH
EZ-3 BOARD
CN113 20P EASY CONECTION
S-Y OUT
S-C OUT
VIDEO OUT
VIDEO GND
AUDIO OUT R
AUDIO OUT L
AUDIO GND
LANC SIG
LANC DC
LANC GND
N.C.
ACV GND
ACV GND
BATT/ EXT
CHARGE INH
RF DC OUT
V.C.
ACV UNREG
ACV UNREG
N.C.
CN111 6P
BATT GND
BATT GND
ACV UNREG
ACV UNREG
ACV GND
ACV GND
TO FU-111 BOARD W011 (POWER BLOCK)
(See Page 172)
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
Video signal input/output, 1Vp-p (When terminated at 75Ω)
VIDEO OUT
RFU DC OUT
CHARGE LED
REMOTE
AUDIO L (MONO) OUT
AUDIO R OUT
S VIDEO OUT
JACK BOARD
REMOTE (LANC) control jack
RFU DC OUT jack
VIDEO/AUDIO jack
S VIDEO jack (4-pin mini-DIN connector)
BOTTOM VIEW
CABINET (REAR)
EASY CONNECTION
ACV UNREG
ACV UNREG
V.C.
RF DC
CHARGE INH
BATT/EXT
ACV GND
ACV GND
S-Y
S-C
VIDEO
V GND
AU R
AU L
AU GND
LANC SIO
LANC DC
L GND
CABINET (FRONT)

VF-55 (CRT DRIVE), VF-56 (VIEW FINDER) PRINTED WIRING BOARDS

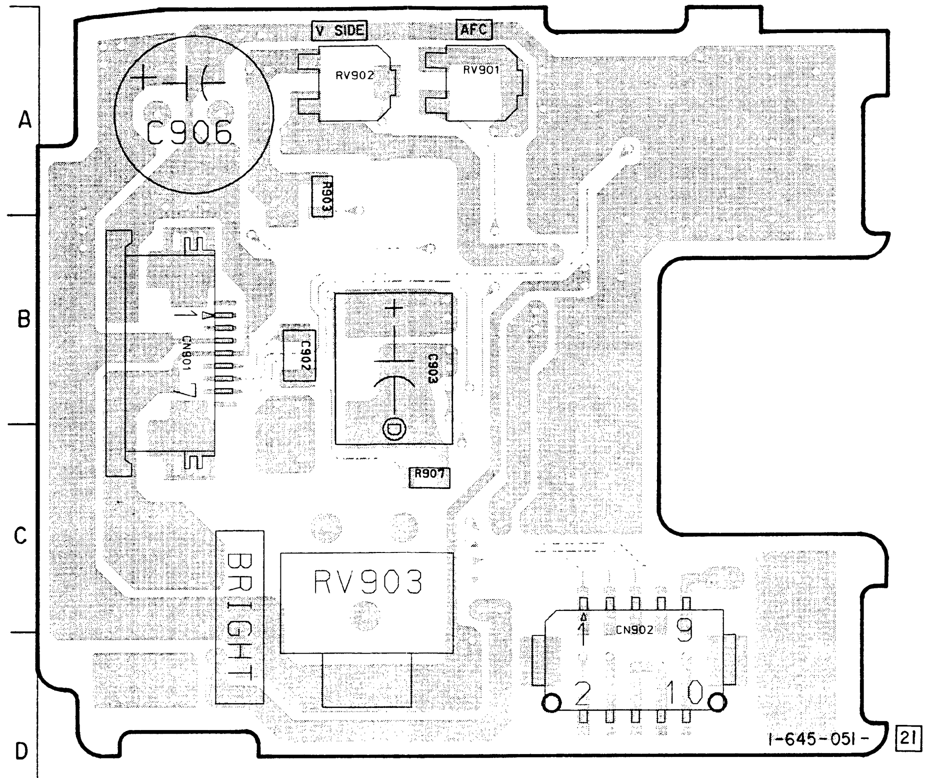
— Ref. No. VF-55 BOARD: 6000 series, VF-56 BOARD: 7000 series —

- **For printed wiring boards**

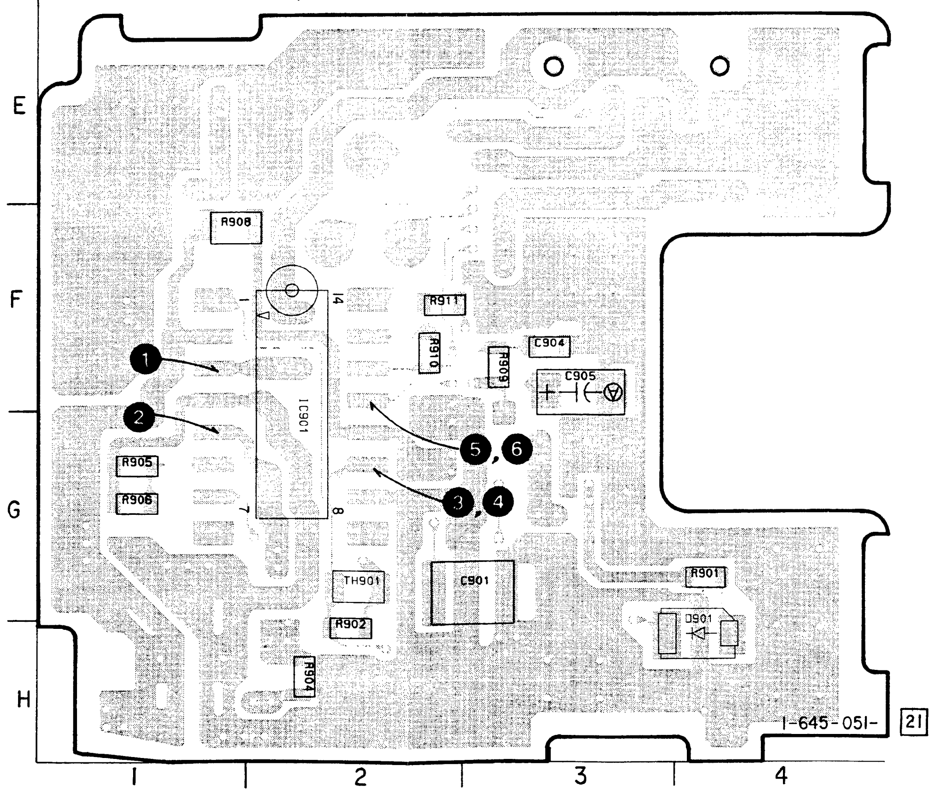
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: **(Conductor Side)**	**Parts on the pattern face side seen from the pattern face are indicated.**
Parts face side: **(Component side)**	**Parts on the parts face side seen from the parts face are indicated.**

VF-55 BOARD (COMPONENT SIDE)


A
B
C
D
V SIDE
AFC
RV902
RV901
C906
R903
CN901
1
7
C902
C903
R907
BRIGHT
RV903
CN902
1
9
2
10
1-645-051-
21

VF-55 BOARD (CONDUCTOR SIDE)


E
F
G
H
R908
IC901
1
14
7
8
R911
R910
R909
C904
C905
❶
❷
❺,❻
❸,❹
R905
R906
TH901
C901
R902
R904
R901
D901
1-645-051-
21
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4

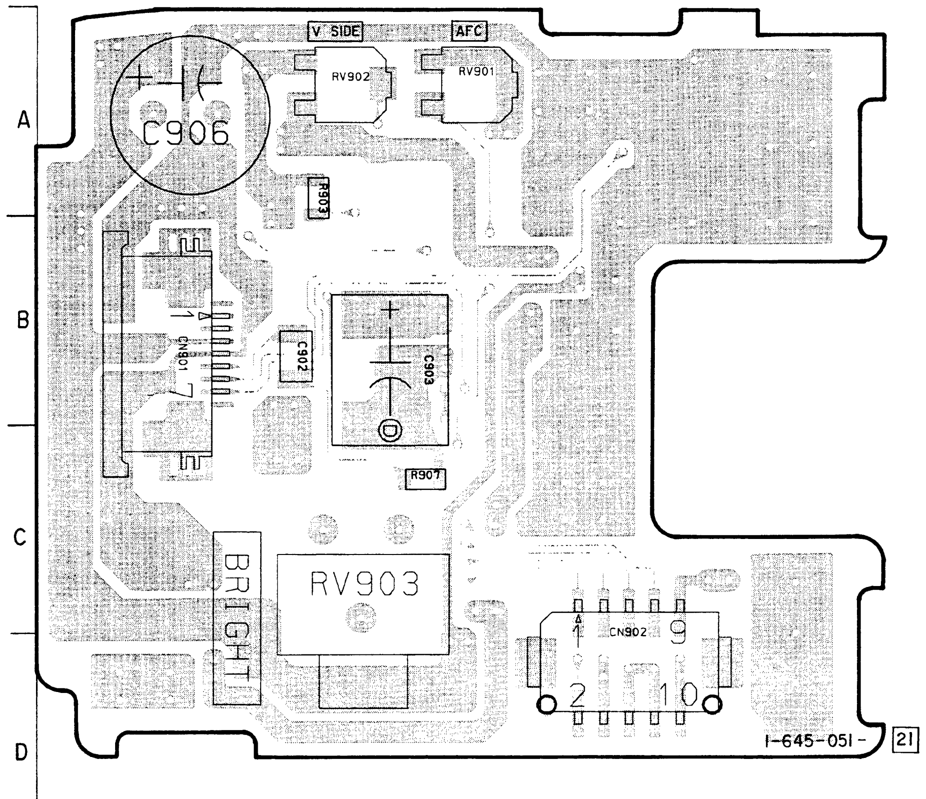
09

7000 series —

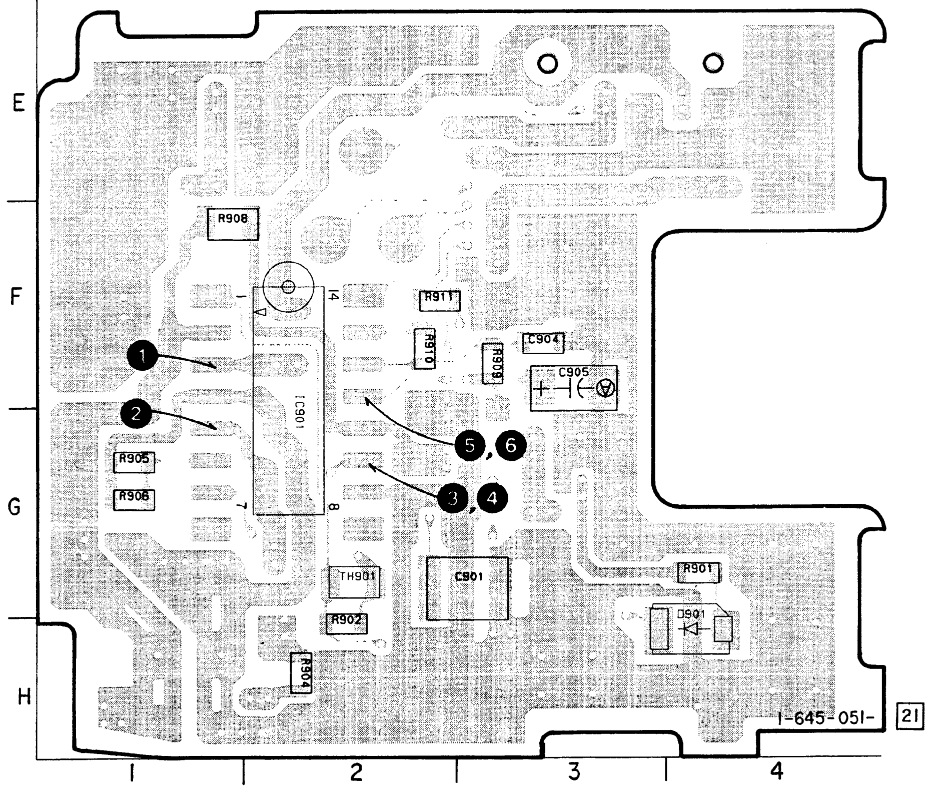
e seen from

een from the

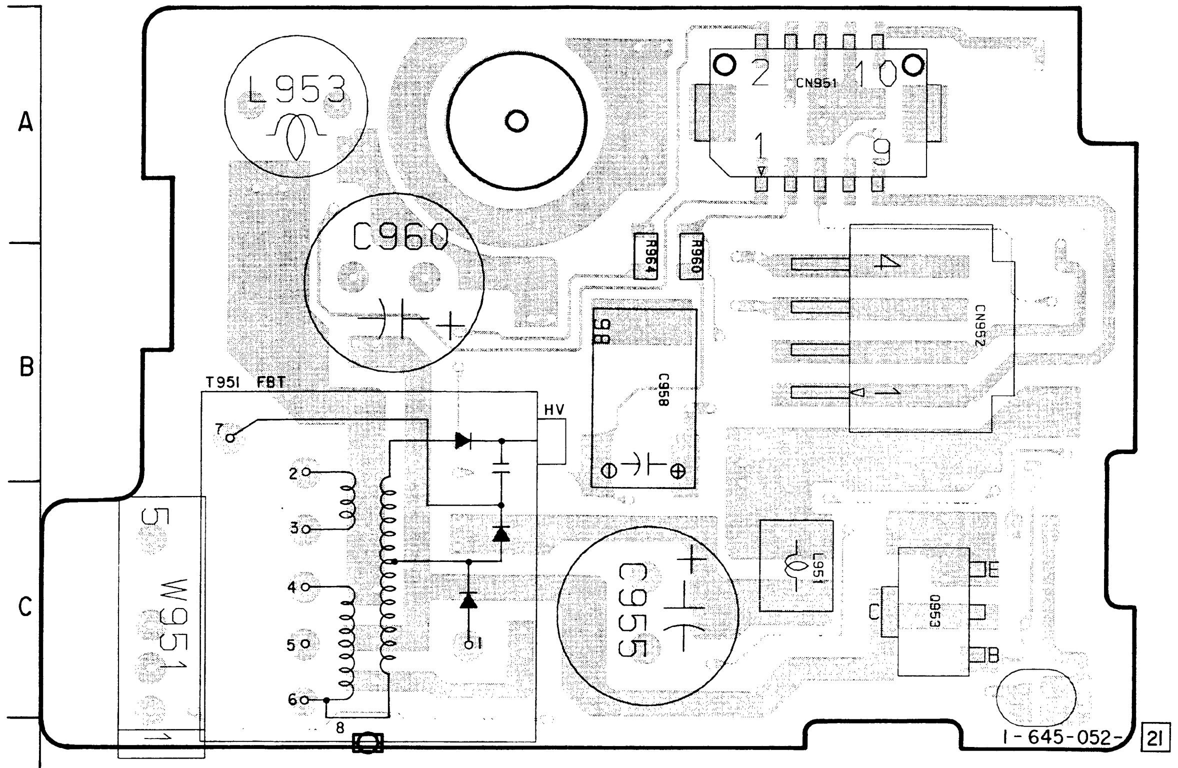
VF-55 BOARD (COMPONENT SIDE)


A
B
C
D
V SIDE
AFC
RV902
RV901
C906
R903
CN901
1
7
C902
C903
R907
BRIGHT
RV903
CN902
1
2
9
10
1-645-051-
21

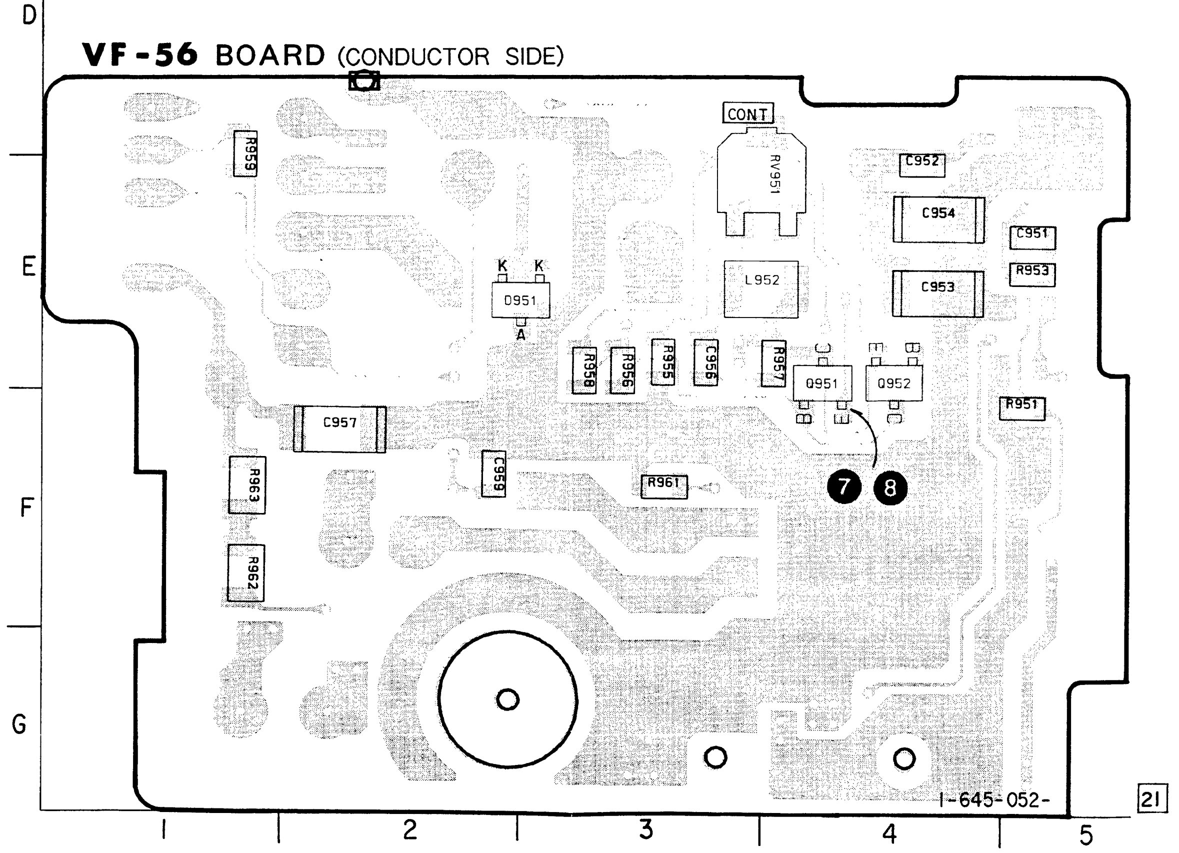
VF-55 BOARD (CONDUCTOR SIDE)


E
F
G
H
R908
IC901
14
7
8
R911
R910
C904
R909
C905
R905
R906
1
2
3
4
5
6
TH901
C901
R902
R901
D901
R904
1-645-051-
21
1
2
3
4

VF-56 BOARD (COMPONENT SIDE)


A
B
C
L953
C960
CN951
2
10
1
9
R964
R960
CN952
4
1
T951 FBT
HV
7
2
3
4
5
6
8
C958
L951
C955
Q953
E
C
B
W951
5
1
1-645-052-
21

VF-56 BOARD (CONDUCTOR SIDE)


D
E
F
G
R959
CONT
RV951
C952
C954
C951
R953
C953
L952
K
K
D951
A
R958
R956
R955
C956
R957
C
B
Q951
Q952
B
E
E
C957
C959
R961
R951
R963
R962
7
8
1-645-052-
21
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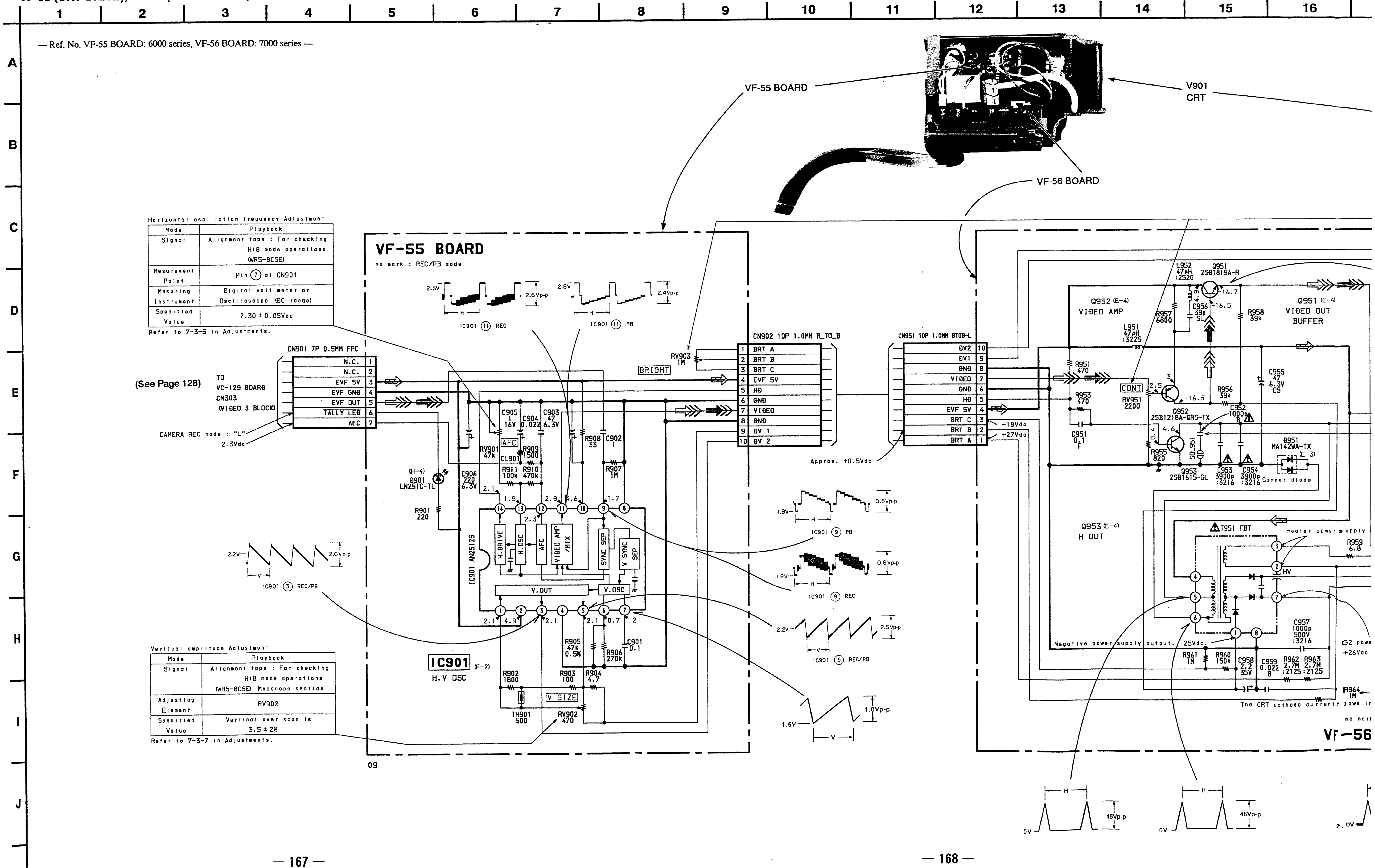
3
4
5

VF-55 (CRT DRIVE), VF-56 (VIEW FINDER) SCHEMATIC DIAGRAMS

— Ref. No. VF-55 BOARD: 6000 series, VF-56 BOARD: 7000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
VF-55 BOARD
VF-56 BOARD
V901
CRT
VF-55 BOARD
no mark : REC/PB mode
2.6V
2.6Vp-p
H
IC901 ⑪ REC
2.8V
2.4Vp-p
H
IC901 ⑪ PB
CN901 7P 0.5MM FPC
N.C. 1
N.C. 2
EVF 5V 3
EVF GND 4
EVF OUT 5
TALLY LED 6
AFC 7
(See Page 128)
TO
VC-129 BOARD
CN303
(VIDEO 3 BLOCK)
CAMERA REC mode : "L"
2.3Vdc
C905 1 16V
C904 0.022
C903 47 6.3V
AFC
RV901 47k
CL901
R909 1500
R911 100k
R910 470k
R908 33
C902 1
R907 1M
(H-4)
D901
LN251C-TL
C906 220 6.3V
R901 220
2.1
1.9
2.3
2.9
4.6
1.7
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
V SYNC SEP
IC901 AN2512S
V.OUT
V.OSC
2.1
4.9
2.1
2.1
0.7
2
R905 47k 0.5%
R906 270k
C901 0.1
IC901 (F-2)
H.V OSC
R902 1800
R903 100
R904 4.7
V SIZE
TH901 500
RV902 470
09
2.2V
2.6Vp-p
V
IC901 ③ REC/PB
RV903 1M
BRIGHT
CN902 10P 1.0MM B_TO_B
1 BRT A
2 BRT B
3 BRT C
4 EVF 5V
5 HD
6 GND
7 VIDEO
8 GND
9 DV 1
10 DV 2
Approx. +0.5Vdc
1.8V
0.8Vp-p
H
IC901 ⑨ PB
1.8V
0.8Vp-p
IC901 ⑨ REC
2.2V
2.6Vp-p
V
IC901 ⑤ REC/PB
1.5V
1.0Vp-p
V
CN951 10P 1.0MM BTOB-L
DV2 10
DV1 9
GND 8
VIDEO 7
GND 6
HD 5
EVF 5V 4
BRT C 3
BRT B 2
BRT A 1
-18Vdc
+27Vdc
L952 47μH :2520
Q951 2SD1819A-R
4.9
-16.7
-16.5
Q952 (E-4)
VIDEO AMP
R957 6800
C956 39p SL
R958 39k
Q951 (E-4)
VIDEO OUT
BUFFER
L951 47μH :3225
R951 470
R953 470
CONT
RV951 2200
3
2.5
-16.5
R956 39k
C955 47 6.3V OS
C952 1000p B
Q952 2SB1218A-QRS-TX
4.6
0.4
C951 0.1 F
R955 820
SOL951
Q953 2SD1615-GL
C953 3900p :3216
C954 3900p :3216
Damper diode
D951 MA142WA-TX
(E-3)
Q953 (C-4)
H OUT
T951 FBT
Heater power supply
R959 6.8
HV
C957 1000p 500V :3216
Negative power supply output. -25Vdc.
G2 powe
+26Vdc
R961 1M
R960 150k
C958 2.2 35V
C959 0.022 B
R962 2.7M :2125
R963 2.7M :2125
R964 1M
The CRT cathode current flows in
no mark
VF-56
H
46Vp-p
0V
H
48Vp-p
0V
12.0V

Horizontal oscillation frequency Adjustment

Mode	Playback
Signal	Alignment tape : For checking Hi8 mode operations (WR5-8CSE)
Mesurement Point	Pin ⑦ of CN901
Mesuring Instrument	Digital volt meter or Oscilloscope (DC range)
Specified Value	2.30 ± 0.05Vdc

Refer to 7-3-5 in Adjustments.

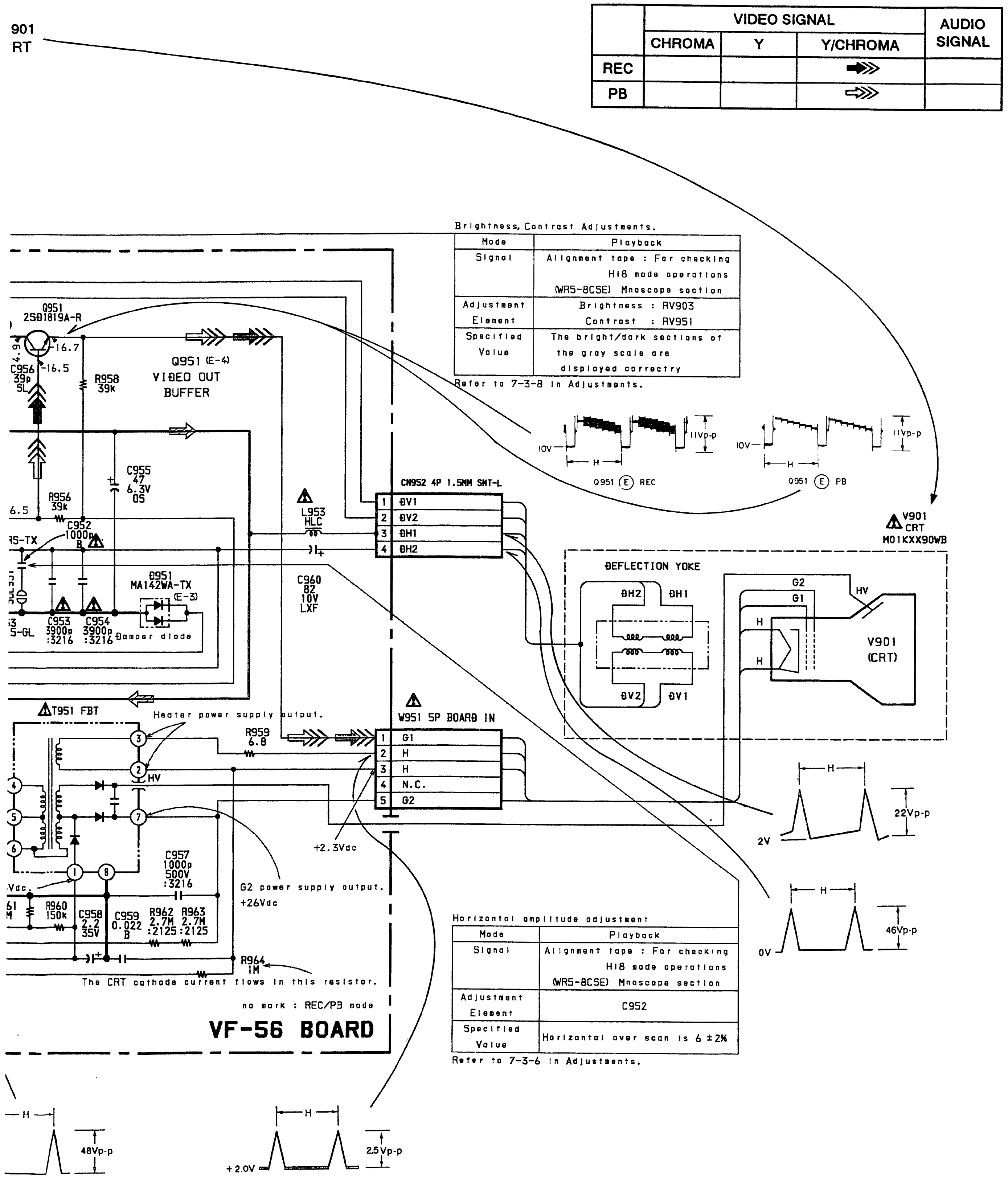
Vertical amplitude Adjustment

Mode	Playback
Signal	Alignment tape : For checking Hi8 mode operations (WR5-8CSE) Mnoscope section
Adjusting Element	RV902
Specified Value	Vertical over scan is 3.5 ± 2%

Refer to 7-3-7 in Adjustments.

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	
PB			⇨	


901
RT
Q951
2SD1819A-R
-16.7
-16.5
4.9
C956
39p
SL
R958
39k
Q951 (E-4)
VIDEO OUT
BUFFER
C955
47
6.3V
OS
R956
39k
6.5
C952
1000p
B
RS-TX
D951
MA142WA-TX
(E-3)
C953
3900p
:3216
C954
3900p
:3216
5-GL
Damper diode
L953
HLC
C960
82
10V
LXF
CN952 4P 1.5MM SMT-L
1 DV1
2 DV2
3 DH1
4 DH2
T951 FBT
Heater power supply output.
R959
6.8
HV
W951 5P BOARD IN
1 G1
2 H
3 H
4 N.C.
5 G2
+2.3Vdc
Vdc.
R960
150k
C958
2.2
35V
C959
0.022
B
C957
1000p
500V
:3216
R962
2.7M
:2125
R963
2.7M
:2125
G2 power supply output.
+26Vdc
R964
1M
The CRT cathode current flows in this resistor.
no mark : REC/PB mode
VF-56 BOARD
DEFLECTION YOKE
DH2
DH1
DV2
DV1
G2
G1
H
H
HV
V901
(CRT)
V901
CRT
M01KXX90WB
10V
H
11Vp-p
Q951 (E) REC
Q951 (E) PB
H
22Vp-p
2V
46Vp-p
0V
48Vp-p
+2.0V
2.5Vp-p

Brightness, Contrast Adjustments.

Mode	Playback
Signal	Alignment tape : For checking H18 mode operations (WR5-8CSE) Mnoscope section
Adjustment Element	Brightness : RV903 Contrast : RV951
Specified Value	The bright/dark sections of the gray scale are displayed correctry

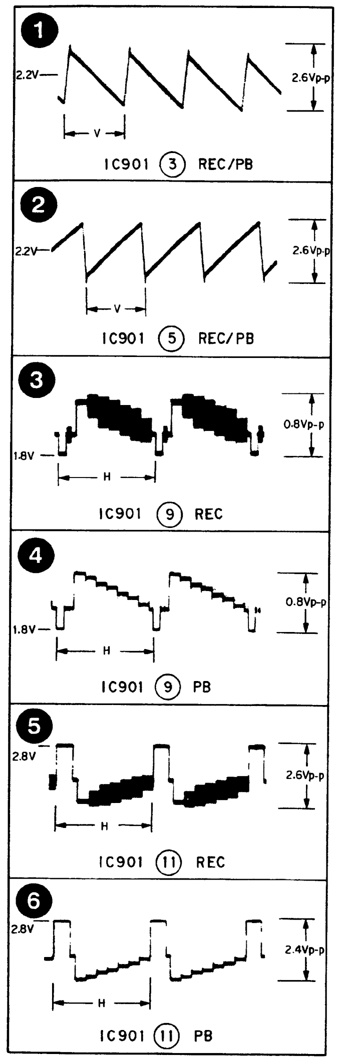
Refer to 7-3-8 in Adjustments.

Horizontal amplitude adjustment

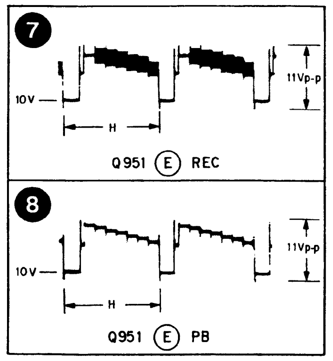
Mode	Playback
Signal	Alignment tape : For checking H18 mode operations (WR5-8CSE) Mnoscope section
Adjustment Element	C952
Specified Value	Horizontal over scan is 6 ±2%

Refer to 7-3-6 in Adjustments.

VF-55 BOARD

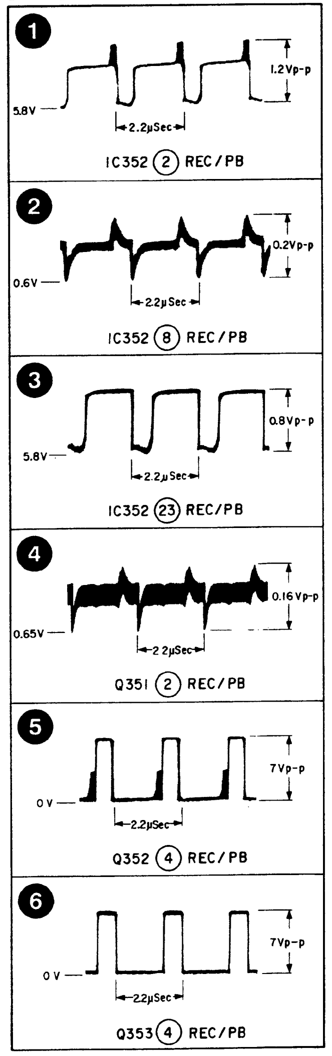

1
2.2V
V
2.6Vp-p
IC901 (3) REC/PB
2
2.2V
V
2.6Vp-p
IC901 (5) REC/PB
3
1.8V
H
0.8Vp-p
IC901 (9) REC
4
1.8V
H
0.8Vp-p
IC901 (9) PB
5
2.8V
H
2.6Vp-p
IC901 (11) REC
6
2.8V
H
2.4Vp-p
IC901 (11) PB

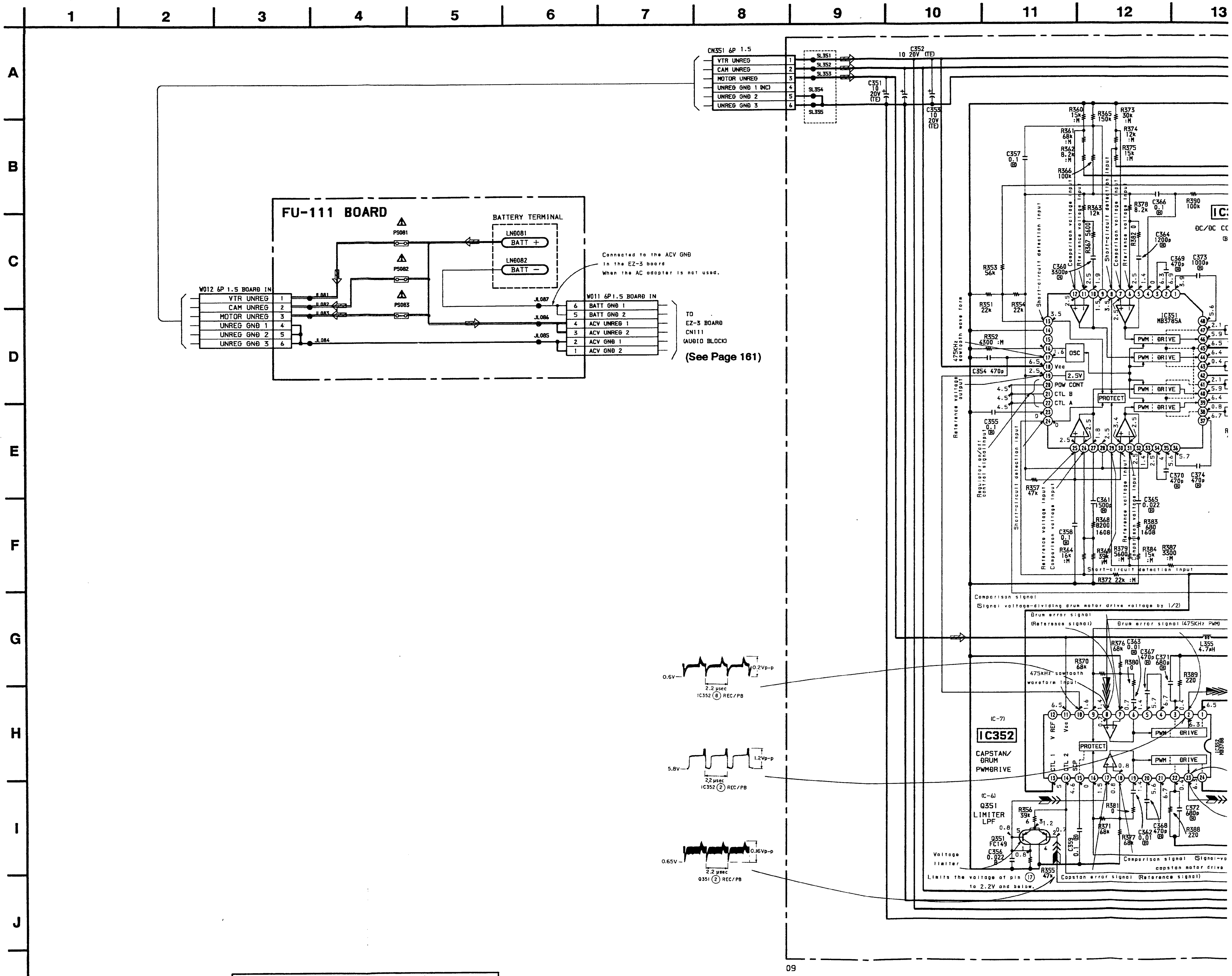
VF-56 BOARD

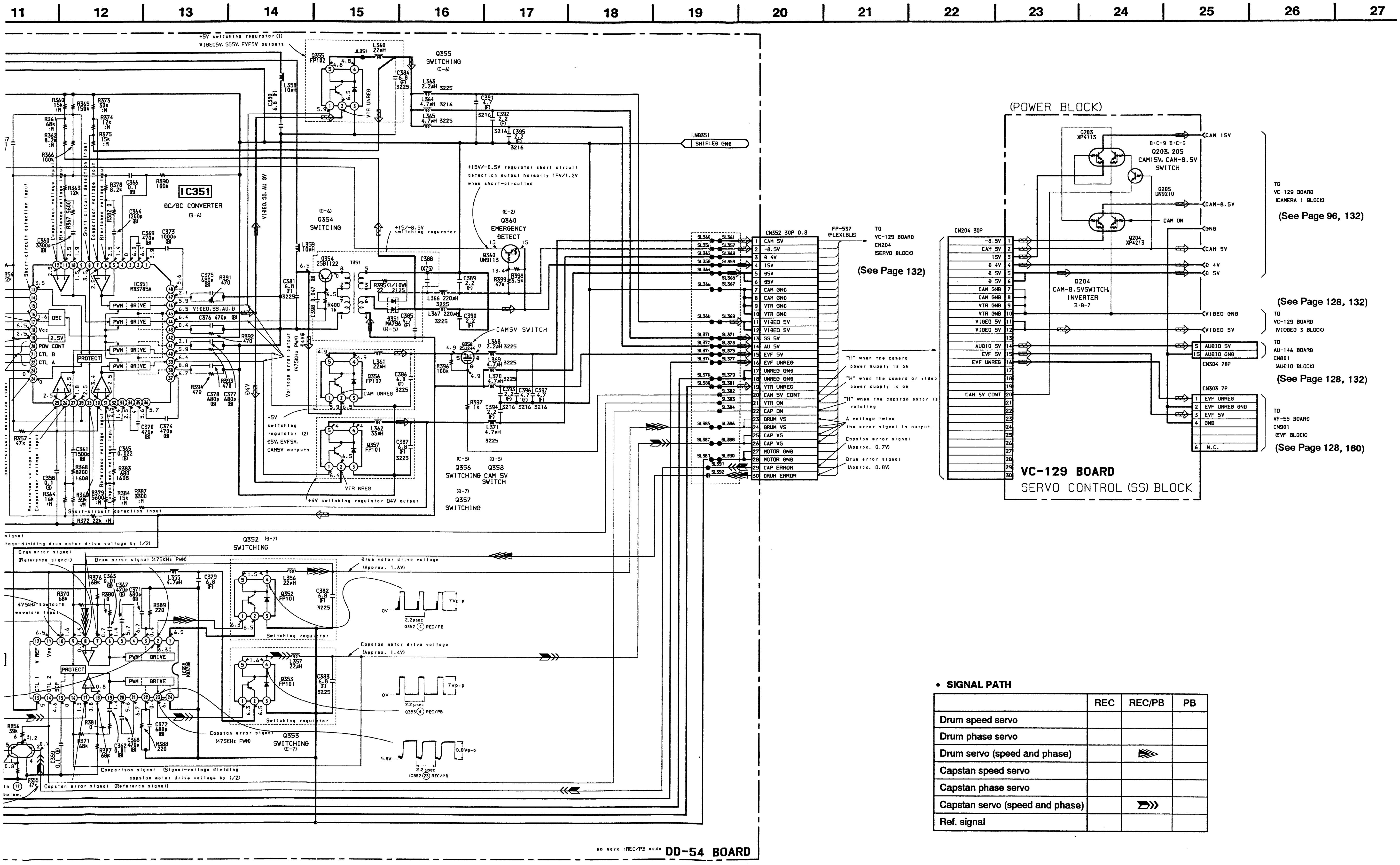

7
10V
H
11Vp-p
Q951 (E) REC
8
10V
H
11Vp-p
Q951 (E) PB

DD-54 (DC-DC CONVERTER, CAP/DRUM SERVO), FU-111 (BATTERY, IC LINK) SCHEMATIC DIAGRAMS

DD-54 BOARD




1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
FU-111 BOARD
BATTERY TERMINAL
LN6081
BATT +
LN6082
BATT −
PS081
PS082
PS083
W012 6P 1.5 BOARD IN
VTR UNREG
CAM UNREG
MOTOR UNREG
UNREG GND 1
UNREG GND 2
UNREG GND 3
W011 6P1.5 BOARD IN
BATT GND 1
BATT GND 2
ACV UNREG 1
ACV UNREG 2
ACV GND 1
ACV GND 2
Connected to the ACV GND in the EZ-3 board
When the AC adopter is not used.
TO EZ-3 BOARD CN111 (AUDIO BLOCK)
(See Page 161)
CN351 6P 1.5
VTR UNREG
CAM UNREG
MOTOR UNREG
UNREG GND 1 (NC)
UNREG GND 2
UNREG GND 3
SL351
SL352
SL353
SL354
SL355
C351 10 20V (TE)
C352 10 20V (TE)
C353 10 20V (TE)
IC351 MB3785A
DC/DC CONVERTER
OSC
PWM DRIVE
PROTECT
POW CONT
CTL B
CTL A
Vcc
2.5V
475KHz sawtooth wave form
Reference voltage output
Short-circuit detection input
Comparison voltage input
Reference voltage input
Regulator on/off control signal input
Comparison signal
(Signal voltage-dividing drum motor drive voltage by 1/2)
Drum error signal
(Reference signal)
Drum error signal (475KHz PWM)
475KHz sawtooth waveform input
IC352
CAPSTAN/DRUM PWM DRIVE
Q351 LIMITER LPF
Q351 FC149
Voltage limiter
Limits the voltage of pin ⑰ to 2.2V and below.
Capstan error signal (Reference signal)
Comparison signal (Signal-voltage-dividing capstan motor drive
L355 4.7mH
0.6V
0.2Vp-p
2.2 μsec
IC352 ⑧ REC/PB
5.8V
1.2Vp-p
2.2 μsec
IC352 ② REC/PB
0.65V
0.16Vp-p
2.2 μsec
Q351 ② REC/PB
09


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
+5V switching regulator (1)
VIDEO5V, SS5V, EVF5V outputs
Q355 FP102
Q355 SWITCHING (C-6)
L360 22μH
C384 6.8 (F) 3225
L363 2.2μH 3225
L364 4.7μH 3216
L365 4.7μH 3225
C391 4.7 (F)
C392 2.2 (F)
C395 2.2 (F)
VTR UNREG
L358 10μH
C380 6.8 (F)
IC351
DC/DC CONVERTER (B-6)
IC351 MB3785A
PWM DRIVE
OSC
PROTECT
VIDEO 5S, AU 5V
VIDEO.SS.AU.D
LN0351
SHIELED GND
+15V/-8.5V regulator short circuit detection output Normally 15V/1.2V when short-circuited
(E-2) Q360 EMERGENCY DETECT
Q360 UN9113
(D-6) Q354 SWITCING
Q354 2SB1122
T351
+15/-8.5V switching regurator
R395(1/10W) 22 2125
D351 MA796 (F) (D-5)
L366 220μH 3225
L367 220μH 3225
C389 2.2 (F)
C390 2.2 (F)
C388 (X7S)
CAM5V SWITCH
Q358 2SJ244
L368 2.2μH 3225
L369 4.7μH 3225
L370 4.7μH 3225
L371 4.7μH 3225
Q356 FP102
L361 22μH
CAM UNREG
+5V switching regulator (2) D5V, EVF5V, CAM5V outputs
Q357 FP101
L362 33μH
VTR NREG
+4V switching regulator D4V output
D4V
(C-5) Q356 SWITCHING
(D-5) Q358 CAM 5V SWITCH
(D-7) Q357 SWITCHING
Voltage error output PWM (475KHz PWM)
Short-circuit detection input
Reference voltage input
Comparison voltage input
Short-circuit detection input
R372 22k :M
signal
tage-dividing drum motor drive voltage by 1/2)
Drum error signal
(Reference signal)
Drum error signal (475KHz PWM)
Q352 (D-7) SWITCHING
Drum motor drive voltage (Approx. 1.6V)
Q352 FP101
L355 4.7μH
L356 22μH
C379 6.8 (F)
C382 6.8 (F) 3225
475KHz sawtooth waveform input
IC352 MB3788
PROTECT
PWM DRIVE
V REF
Vcc
CTL 1
CTL 2
Switching regulator
7Vp-p
0V
2.2μsec
Q352 ④ REC/PB
Capstan motor drive voltage (Approx. 1.4V)
Q353 FP101
L357 22μH
C383 6.8 (F) 3225
Switching regulator
Q353 SWITCHING (E-7)
7Vp-p
0V
2.2μsec
Q353 ④ REC/PB
Capstan error signal (475KHz PWM)
0.8Vp-p
5.8V
2.2 μsec
IC352 ㉓ REC/PB
Comparison signal (Signal-voltage dividing capstan motor drive voltage by 1/2)
Capstan error signal (Reference signal)
below.
no mark :REC/PB mode
DD-54 BOARD
SL360 SL361
SL356 SL357
SL362 SL363
SL358 SL359
SL364 SL365
SL366 SL367
SL368 SL369
SL370 SL371
SL372 SL373
SL374 SL375
SL376 SL377
SL378 SL379
SL380 SL381
SL382
SL383
SL384
SL385 SL386
SL387 SL388
SL389 SL390
SL391
SL392
CN352 30P 0.8
1 CAM 5V
2 -8.5V
3 D 4V
4 15V
5 D5V
6 D5V
7 CAM GND
8 CAM GND
9 VTR GND
10 VTR GND
11 VIDEO 5V
12 VIDEO 5V
13 SS 5V
14 AU 5V
15 EVF 5V
16 EVF UNREG
17 UNREG GND
18 UNREG GND
19 VTR UNREG
20 CAM 5V CONT
21 VTR ON
22 CAP ON
23 DRUM VS
24 DRUM VS
25 CAP VS
26 CAP VS
27 MOTOR GND
28 MOTOR GND
29 CAP ERROR
30 DRUM ERROR
FP-537 (FLEXIBLE)
TO VC-129 BOARD CN204 (SERVO BLOCK)
(See Page 132)
"H" when the camera power supply is on
"H" when the camera or video power supply is on
"H" when the capstan motor is rotating
A voltage twice the error signal is output.
Capstan error signal (Approx. 0.7V)
Drum error signal (Approx. 0.8V)
CN204 30P
1 -8.5V
2 CAM 5V
3 15V
4 D 4V
5 D 5V
6 D 5V
7 CAM GND
8 CAM GND
9 VTR GND
10 VTR GND
11 VIDEO 5V
12 VIDEO 5V
14 AUDIO 5V
15 EVF 5V
16 EVF UNREG
20 CAM 5V CONT
(POWER BLOCK)
Q203 XP4113
B·C-9 B·C-9
Q203, 205 CAM15V, CAM-8.5V SWITCH
Q205 UN9210
CAM ON
Q204 XP4213
Q204 CAM-8.5VSWITCH INVERTER B·D-7
CAM 15V
CAM-8.5V
GND
CAM 5V
D 4V
D 5V
VIDEO GND
VIDEO 5V
5 AUDIO 5V
15 AUDIO GND
CN304 28P
CN303 7P
1 EVF UNREG
2 EVF UNREG GND
3 EVF 5V
4 GND
6 N.C.
VC-129 BOARD
SERVO CONTROL (SS) BLOCK
TO VC-129 BOARD (CAMERA 1 BLOCK)
(See Page 96, 132)
(See Page 128, 132)
TO VC-129 BOARD (VIDEO 3 BLOCK)
TO AU-146 BOARD CN801 (AUDIO BLOCK)
(See Page 128, 132)
TO VF-55 BOARD CN901 (EVF BLOCK)
(See Page 128, 160)

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		⋙	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		≫	
Ref. signal			

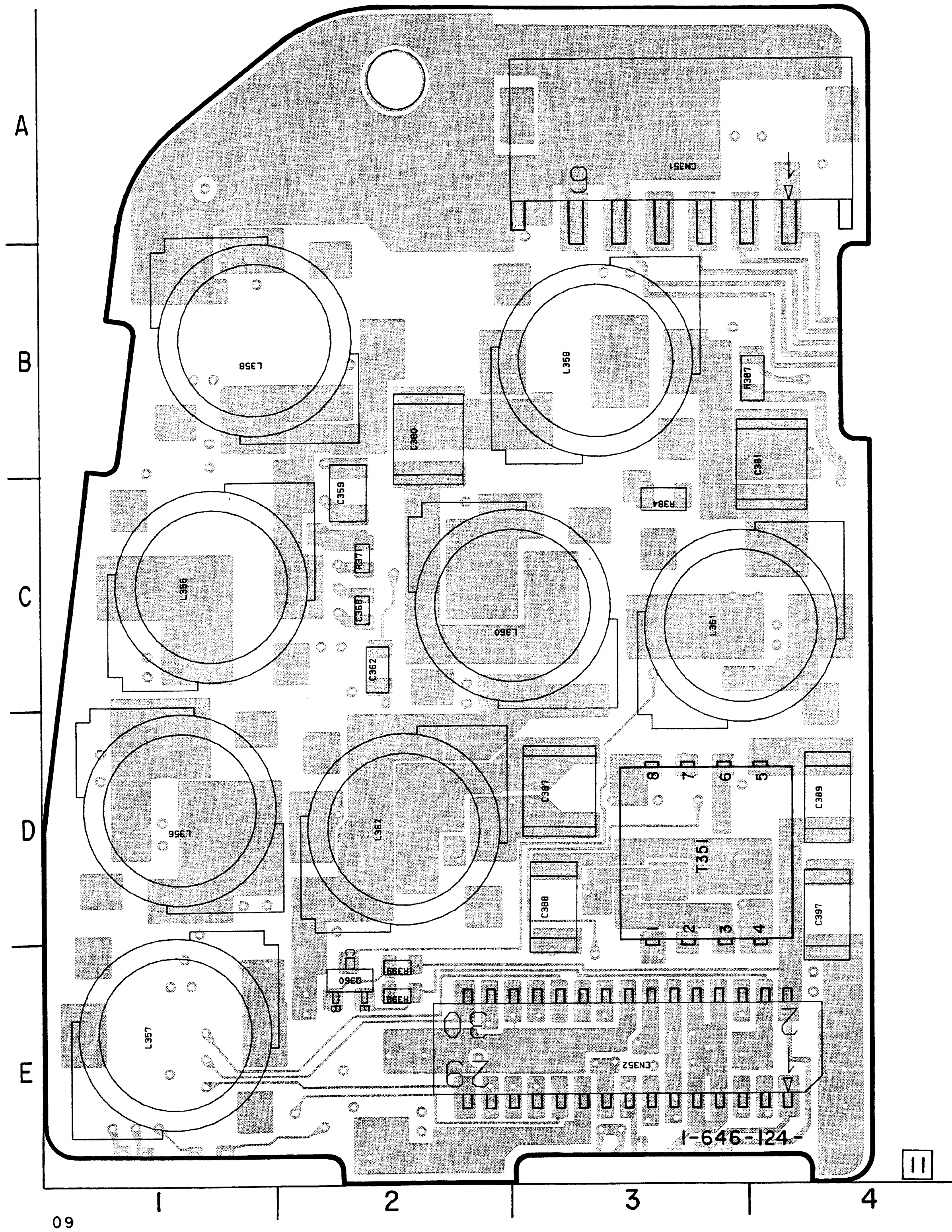
DD-54 (DC-DC CONVERTER, CAP/DRUM SERVO), FU-111 (BATTERY, IC LINK) PRINTED WIRING BOARDS

— Ref. No. DD-54, FU-111 BOARDS: 9000 series —

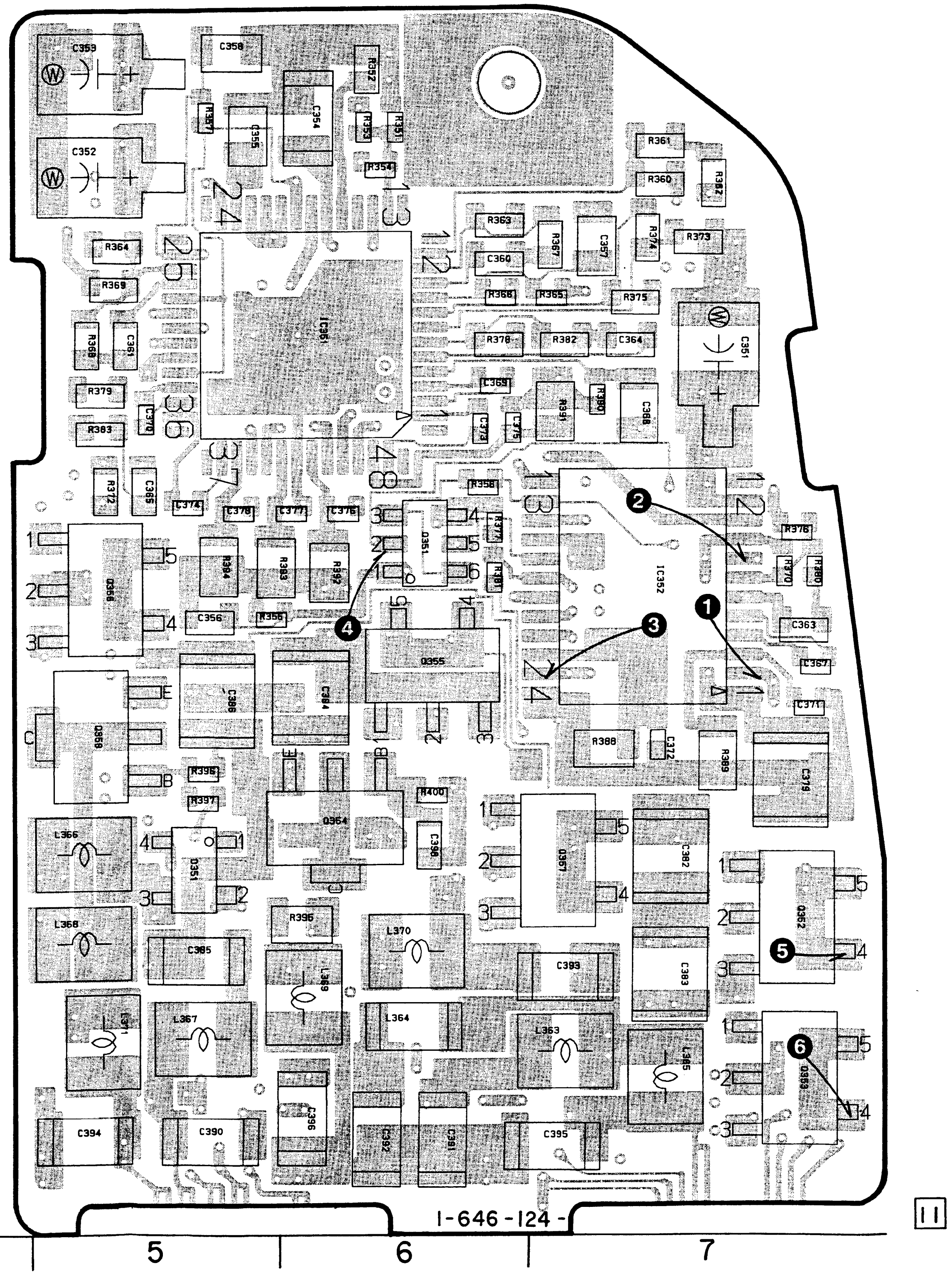
- **For printed wiring boards**
- DD-54 board is a six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- ● : Through hole is omitted.
- Resistors and capacitors are displayed in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

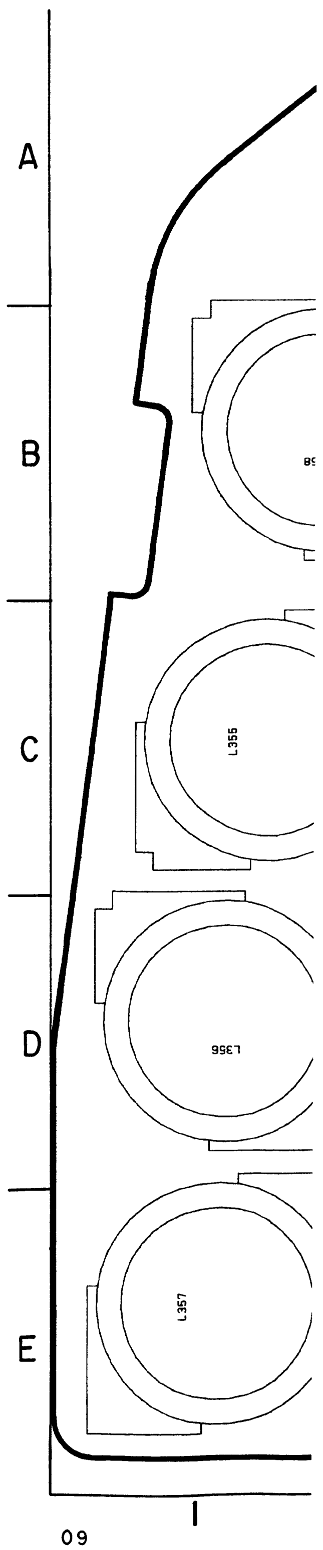
DD-54 BOARD (COMPONENT SIDE)


A
B
C
D
E
1
2
3
4
CN351
L358
L359
C380
R387
C381
R384
C393
R371
R386
C362
L355
L360
L361
L356
L362
C387
C389
T351
C388
C397
L357
Q960
R399
CN352
1-646-124-
11

DD-54 BOARD (CONDUCTOR SIDE)


5
6
7
C353
C352
C358
R352
R353
R351
R357
C355
C354
R354
R361
R360
R362
R364
R363
C360
R367
C357
R374
R373
R369
R366
R365
R375
IC351
R368
C361
R378
R382
C364
C351
R379
C369
R391
R390
C388
R383
C374
C373
C375
R372
C365
C374
C378
C377
C376
R356
R377
Q351
R376
R370
R380
R394
R393
R392
R381
IC352
Q356
C356
R355
Q355
C363
C367
C371
C386
C384
Q368
R388
C372
R389
C379
R398
R397
R400
Q364
C396
L366
Q351
Q367
C382
Q362
L368
R396
L370
C383
C385
L369
C399
C393
L371
L367
L364
L363
L365
Q369
C394
C390
C396
C392
C391
C395
1-646-124-
11
❶
❷
❸
❹
❺
❻

DD-54 BC

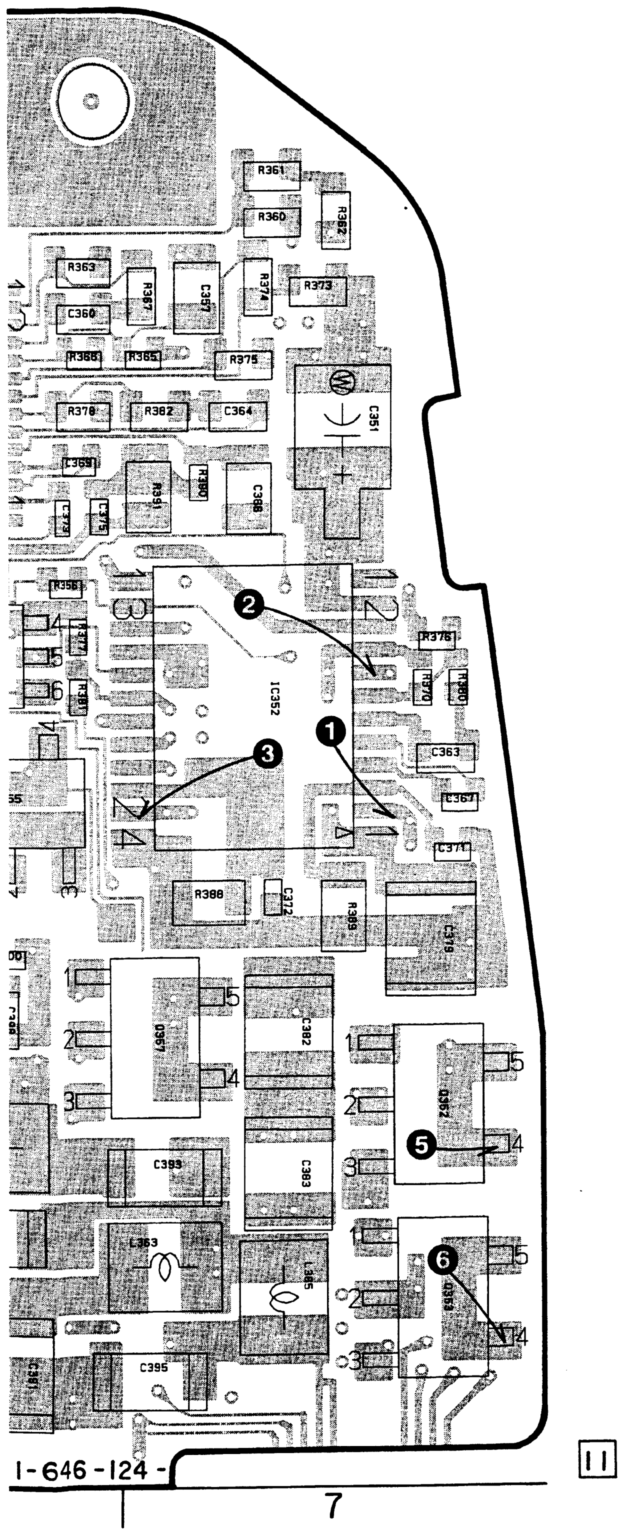

A
B
C
D
E
1
L355
L356
L357

board. However, the patterns of
ıded in the diagram.

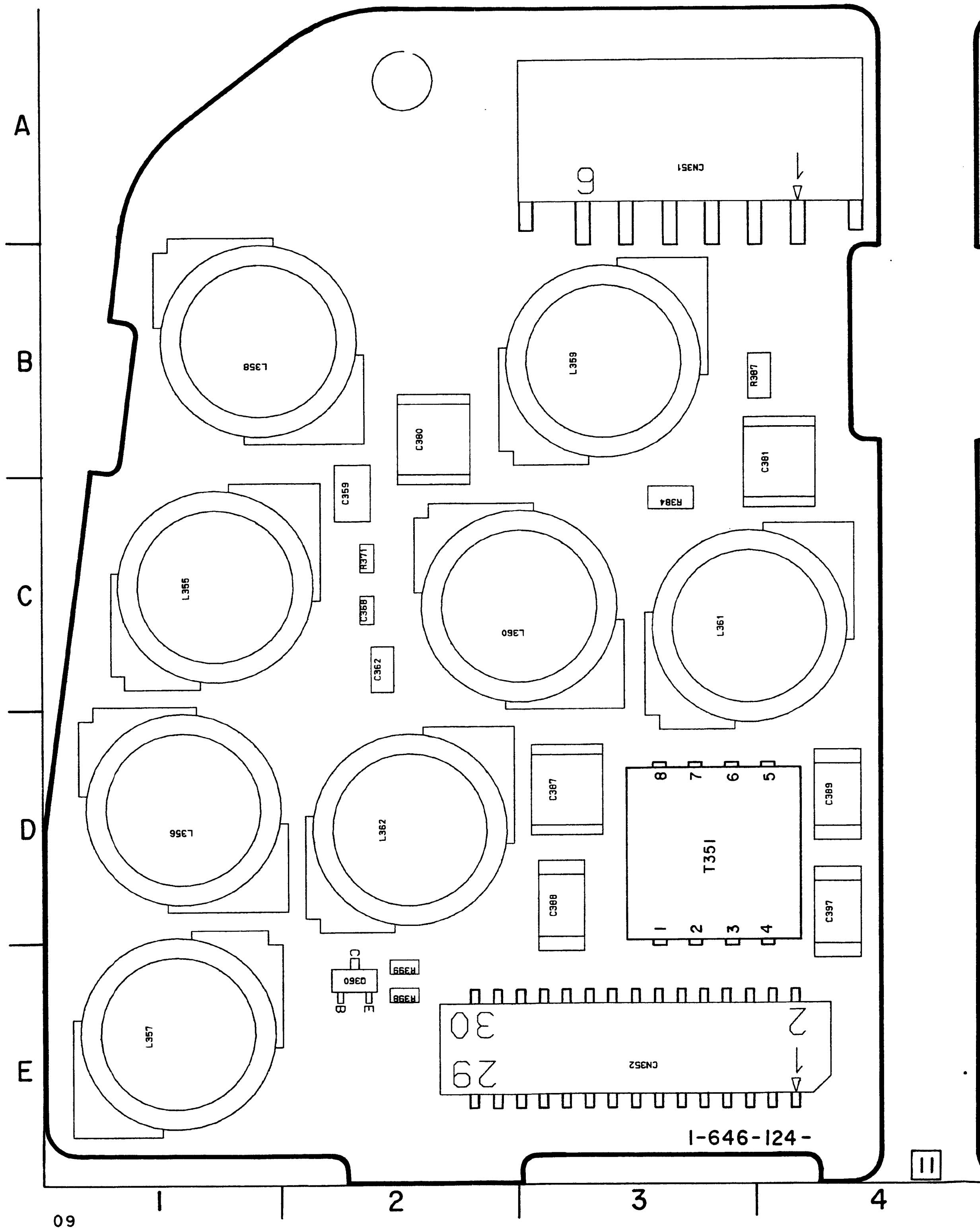
played in red.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

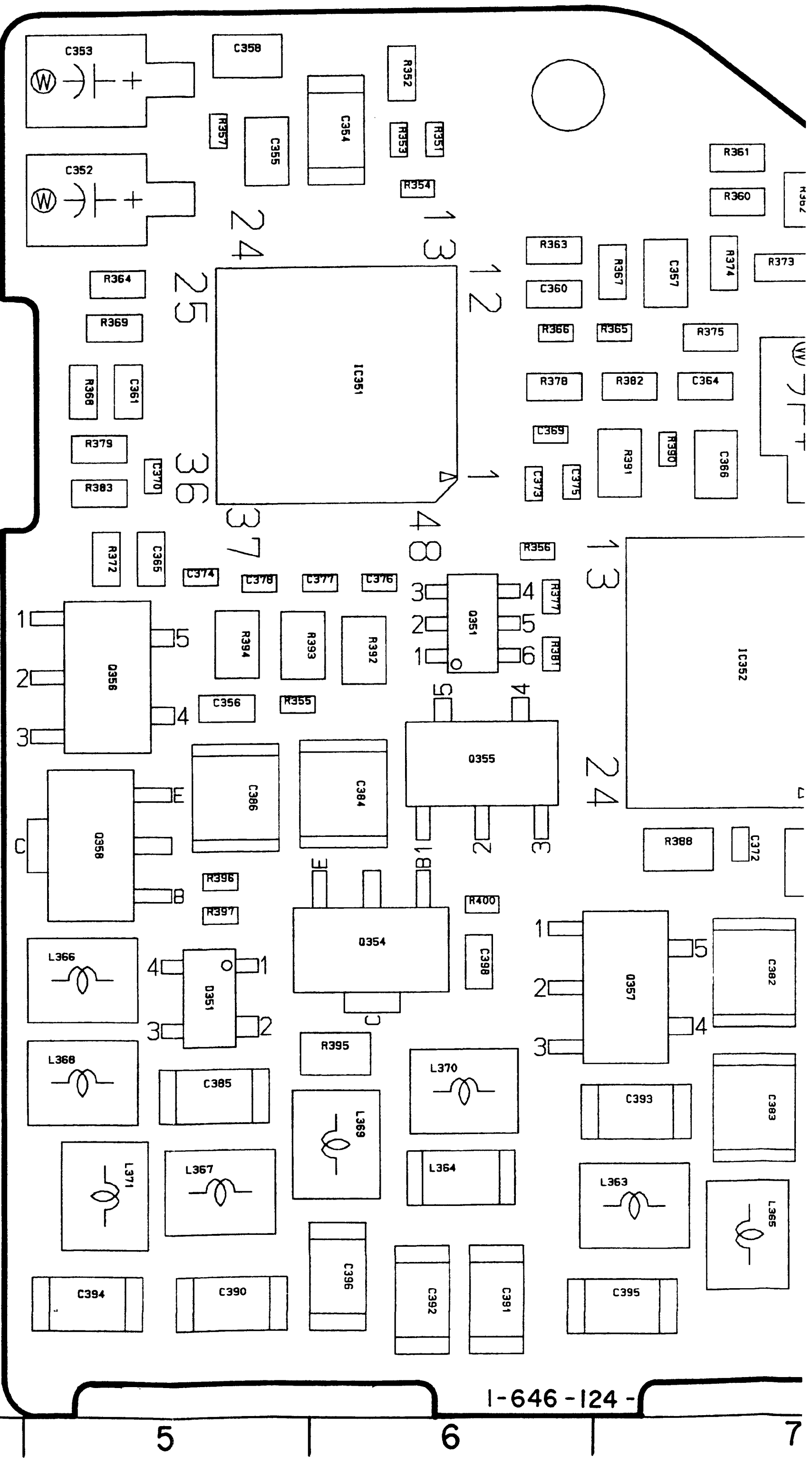
:TOR SIDE)


R361
R360
R362
R363
R367
C357
R374
R373
C360
R366
R365
R375
R378
R382
C364
C351
R391
R390
C398
IC352
C363
C367
C371
R388
C372
R389
C379
Q357
C382
Q362
C393
C383
L363
L365
Q363
C395
1-646-124-
7
11

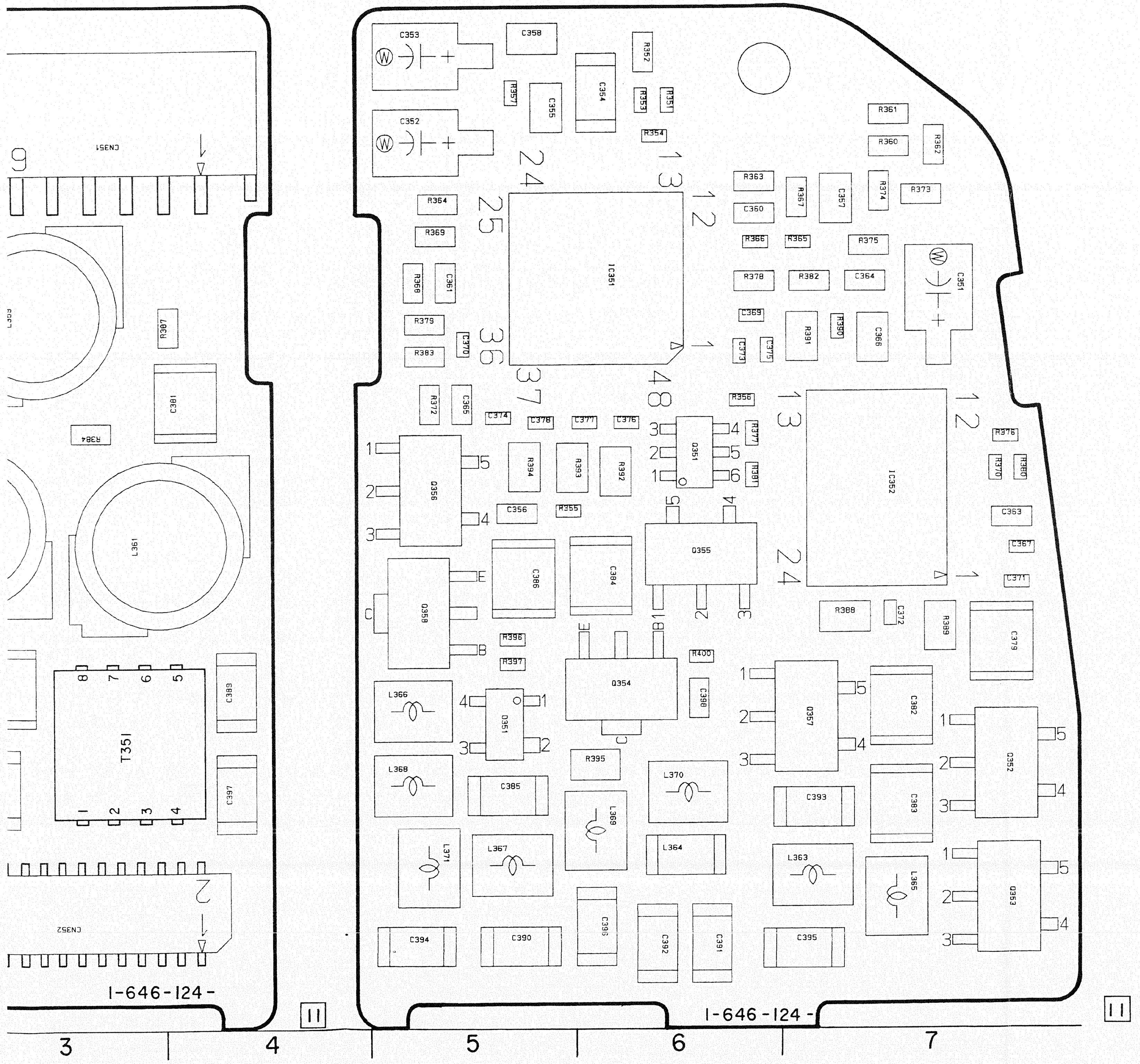
DD-54 BOARD (COMPONENT SIDE)


A
B
C
D
E
CN351
9
1
L358
L359
R387
C380
C381
R384
C359
L355
R371
C368
C362
L360
L361
L356
L362
C387
T351
C389
C388
C397
L357
Q360
R399
R398
CN352
30
29
2
1-646-124-
09
1
2
3
4
11

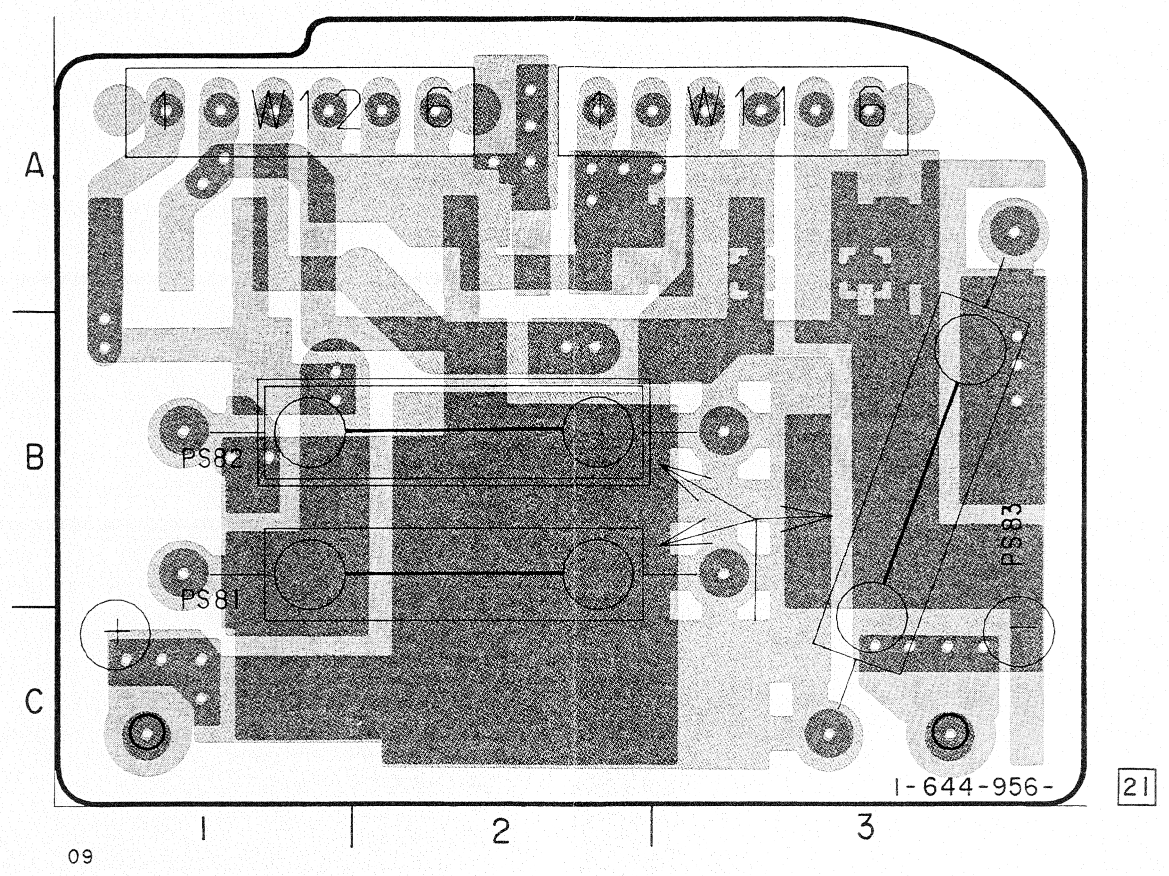
DD-54 BOARD (CONDUCTOR SIDE)


C353
C352
C358
C355
C354
R352
R353
R351
R357
R354
R361
R360
R363
R367
C357
R374
R373
C360
R366
R365
R375
R364
R369
IC351
R378
R382
C364
R368
C361
R379
R383
C370
C369
R391
R390
C366
C373
C375
R372
C365
C374
C378
C377
C376
R356
Q351
R377
R381
IC352
Q356
R394
R393
R392
C356
R355
Q355
Q358
C386
C384
R396
R397
R388
C372
R400
Q354
C398
L366
Q361
Q357
C382
L368
R395
C385
L369
L370
C393
C383
L371
L367
L364
L363
L365
C394
C390
C396
C392
C391
C395
1-646-124-
5
6
7

DD-54 BOARD (CONDUCTOR SIDE)


CN351
CN352
T351
L361
C381
C389
C387
R307
R384
C353
C352
C358
R352
R357
C355
C354
R353
R351
R354
R361
R360
R362
R364
R369
R368
C361
R379
R383
C370
IC351
R363
R367
C357
R374
R373
C360
R366
R365
R375
R378
R382
C364
C351
C369
C373
C375
R391
R390
C366
R372
C365
C374
C378
C377
C376
R356
R377
R381
Q351
Q356
R394
R393
R392
C356
R355
Q355
IC352
R376
R370
R380
C363
C367
C371
Q358
C386
C384
R388
C372
R389
C379
R396
R397
R400
Q354
C398
Q357
C382
Q352
L366
D351
R395
L368
C385
L370
L369
C393
C383
L371
L367
L364
L363
L365
Q353
C394
C390
C396
C392
C391
C395
1-646-124-
11
3
4
5
6
7

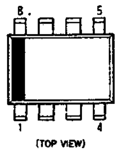
FU-111 BOARD (COMPONENT SIDE)


W12
W11
PS82
PS81
PS83
A
B
C
1-644-956-
21
09
1
2
3

- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

4-3. SEMICONDUCTOR

AK642F


8
5
1
4
(TOP VIEW)

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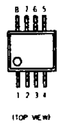
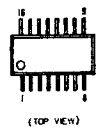
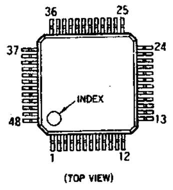
LM358D
LM358PW
NJM3404AV
NJM3416V
TA75W01F11



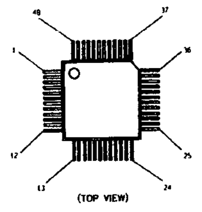
CXA14152
CXA1618AN
CXD2121N
CXL1506N
FA7615M
FB86168PFV-ER


16
9
1
8
(TOP VIEW)

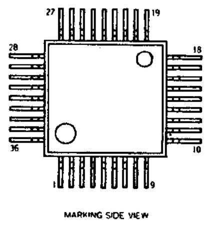
CXA1481AR
CXD211R
MB3785APFV-G-BND-ER
MB8834PFV
MCD002AR


36
25
37
24
INDEX
48
13
1
12
(TOP VIEW)

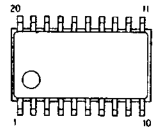
CXA1488R



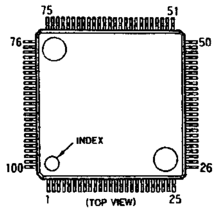
CXA1536Q


MARKING SIDE VIEW

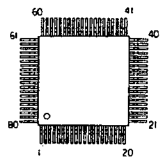
CXD1250N
CXD2104BN



CXD2130R-T6
CXP80620A-015R
CXP80624A-013R
MB89092PFV-G-112A


75
51
76
50
INDEX
100
26
1
(TOP VIEW)
25

CXD2133R-T6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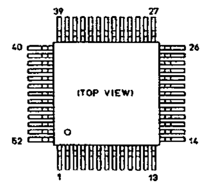
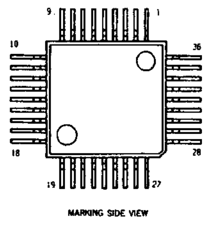
80
21
1
20

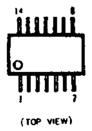
IR3Y09


39
27
40
26
(TOP VIEW)
52
14
1
13

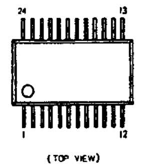
LB8110M


MARKING SIDE VIEW

LM324PW
NJM3403AV
SN74HCU04ADB
TC4066BFS
TL1596CPW


14
8
1
7
(TOP VIEW)

MB3788PFV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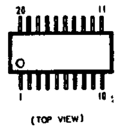
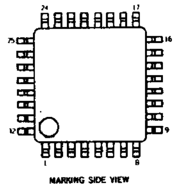
13
1
12
(TOP VIEW)

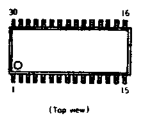
MB883463FFV-EF
MPC1720VM
MPC1724VMEL
μPD6453GT-621


20
11
1
10
(TOP VIEW)

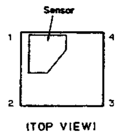
MC13400FU


MARKING SIDE VIEW

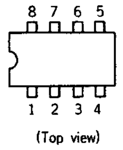
MCD0048N


30
16
1
15
(Top view)

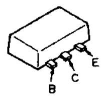
RS-20E-T


Sensor
1
4
2
3
(TOP VIEW)

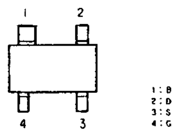
S-8420F


8 7 6 5
1 2 3 4
(Top view)

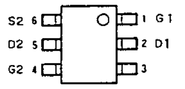
2SB1581



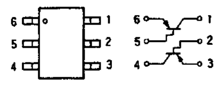
3SK248


1
2
4
3
1 : G
2 : D
3 : S
4 : G

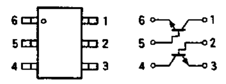
FC13


S2 6
D2 5
G2 4
1 G1
2 D1
3

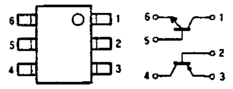
FC149
XP4113
XP4401



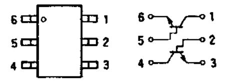
XP4213



XP4312



XP4501



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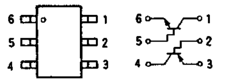
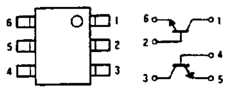
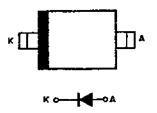


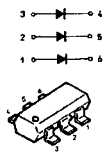
XP6215



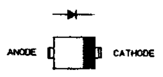
MA110



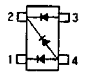
MA1S121



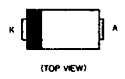
MA365 (E)


ANODE
CATHODE

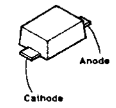
MA796



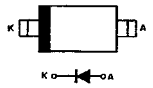
MA8051-M
MA8082-M



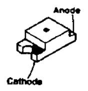
MA8082-M
MA8091-M


Anode
Cathode

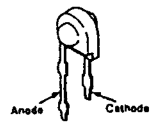
RD8.2VM-T1B3



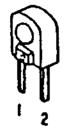
BR1102W


Anode
Cathode

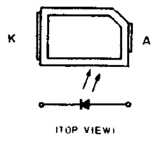
GL453

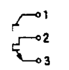

Anode
Cathode

PT4850F

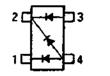


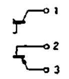
LN1251C



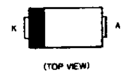


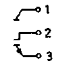
MA796



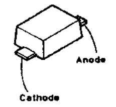


MA8051-M
MA8082-M

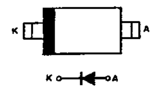


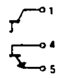


MA8082-M
MA8091-M

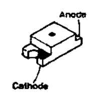

Anode
Cathode

RD8.2VM-T1B3





BR1102W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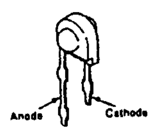
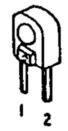
Cathode

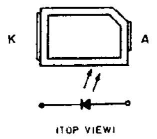
GL453


Anode
Cathode

PT4850F



LN1251C



SECTION 5

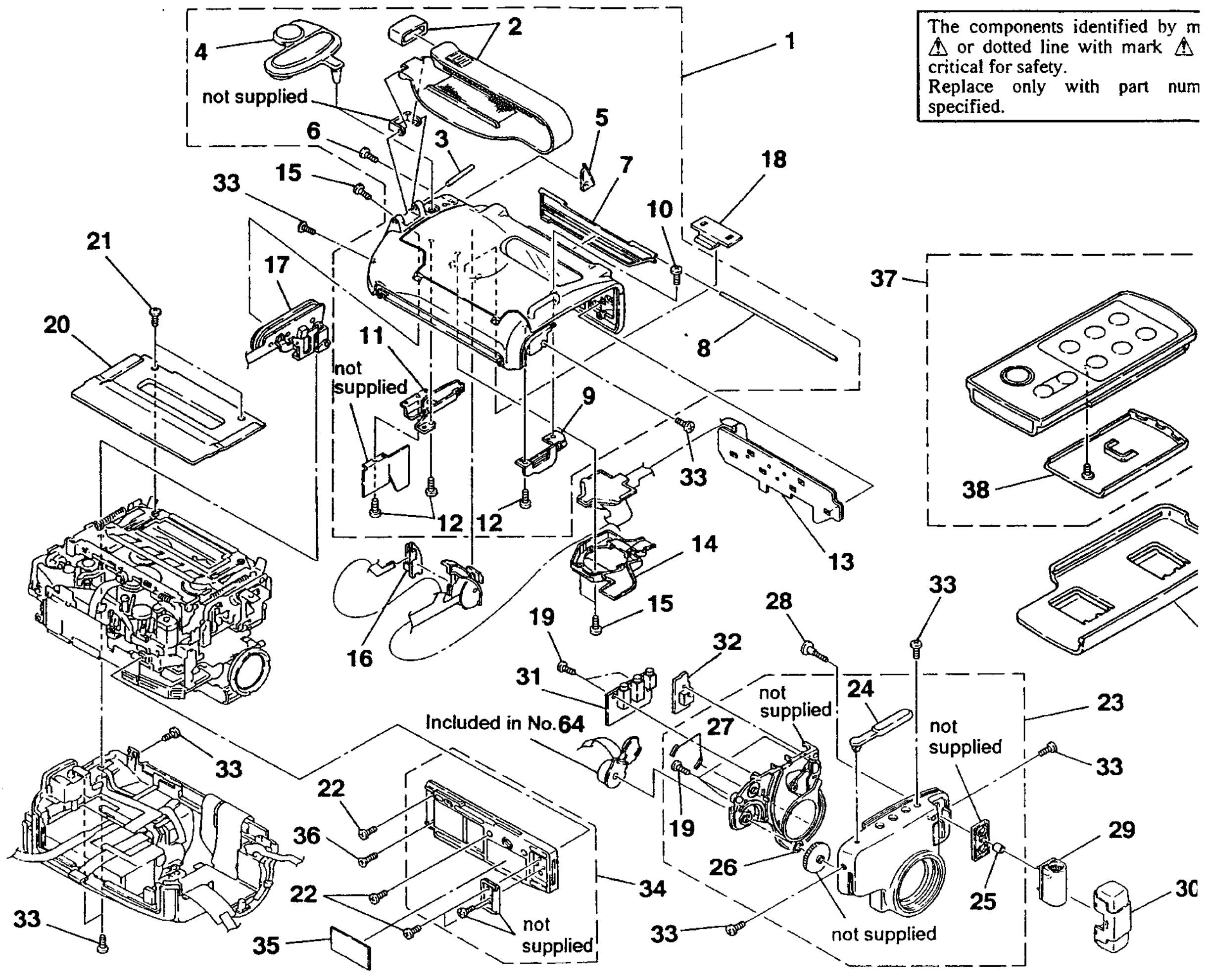
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no refer number in the exploded views are supplied.
- Hardware (# mark) list is given in th of this parts list.

The components identified by m ⚠ or dotted line with mark ⚠ critical for safety.
Replace only with part num specified.

5-1. CABINET (L) AND F PANEL ASSEMBLIES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not supplied
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33
33
34
35
36
37
38
not supplied
not supplied
not supplied
not supplied
Included in No.64

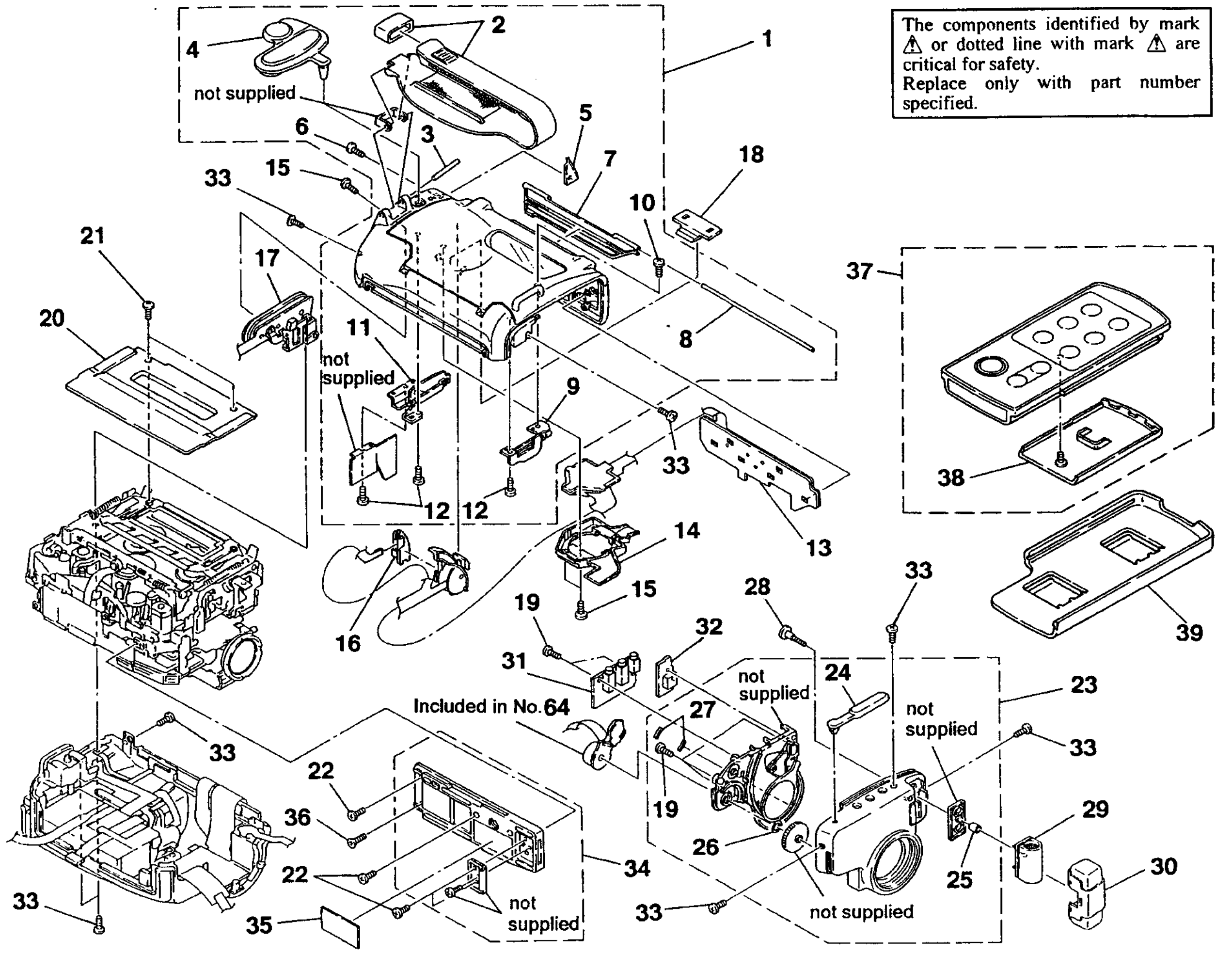
Ref. No.	Part No.	Description	Remark
1	X-3942-206-1	CABINET (L) ASSY	
2	3-948-905-01	BELT, GRIP	
3	3-948-913-01	SHAFT, BELT	
4	3-948-927-01	COVER, JACK	
5	3-948-922-01	BRACKET (L), STRAP	
6	3-713-786-01	SCREW (M2X4)	
7	3-948-921-01	COVER, FUNCTION	
* 8	3-950-507-01	SHAFT, F DOOR	
9	X-3942-230-1	ARM ASSY, FRONT LID	
10	3-719-381-31	SCREW (M2X3)	
11	X-3941-900-1	ARM ASSY, LID	
12	3-719-601-21	SCREW (B2X5), TAPPING	
13	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)	
* 14	3-949-027-01	COVER, FK	
15	3-719-601-11	SCREW (B2X5), TAPPING	
16	A-7071-736-A	RE-23 BOARD, COMPLETE	
17	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO OUT)	
18	3-949-028-01	PLATE, ORNAMENTAL, CABINET (L)	
19	3-719-601-01	SCREW (B2X5), TAPPING	
* 20	3-949-026-11	CASE, CASSETTE	
21	3-728-126-11	SCREW (M1.4X2.5), SPECIAL HEAD	
22	3-719-381-11	SCREW (M2X5)	
23	X-3942-203-1	PANEL ASSY, F	
24	3-948-931-01	COVER (F), JACK	
25	3-657-842-01	SPACER (3X4)	
* 26	3-950-033-01	RING (7.4X5X1.2), O	
27	3-951-604-01	CUSHION (B), LENS	
28	3-950-590-01	SCREW (B2) (2X7), TAPPING	
29	1-542-190-11	MICROPHONE UNIT	
30	X-3941-910-1	GRILLE ASSY, WINDOW	
31	A-7071-735-A	MA-164 BOARD, COMPLETE	
32	A-7071-740-A	RE-22 BOARD, COMPLETE	
33	3-719-381-01	SCREW (M2X4)	
34	X-3942-550-1	CABINET (BOTTOM) ASSY	
* 35	3-950-397-01	LABEL, MODEL NUMBER (AEP)	
* 35	3-951-498-01	LABEL, MODEL NUMBER (UK)	
36	3-724-437-01	SCREW (2X4)	
37	1-693-192-21	REMOTE COMMANDER (RMT-703)	
38	3-950-097-01	COVER BATTERY, REMOCON	
39	3-950-096-01	HOLDER, REMOTE CONTROL	

SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

5-1. CABINET (L) AND F PANEL ASSEMBLIES

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



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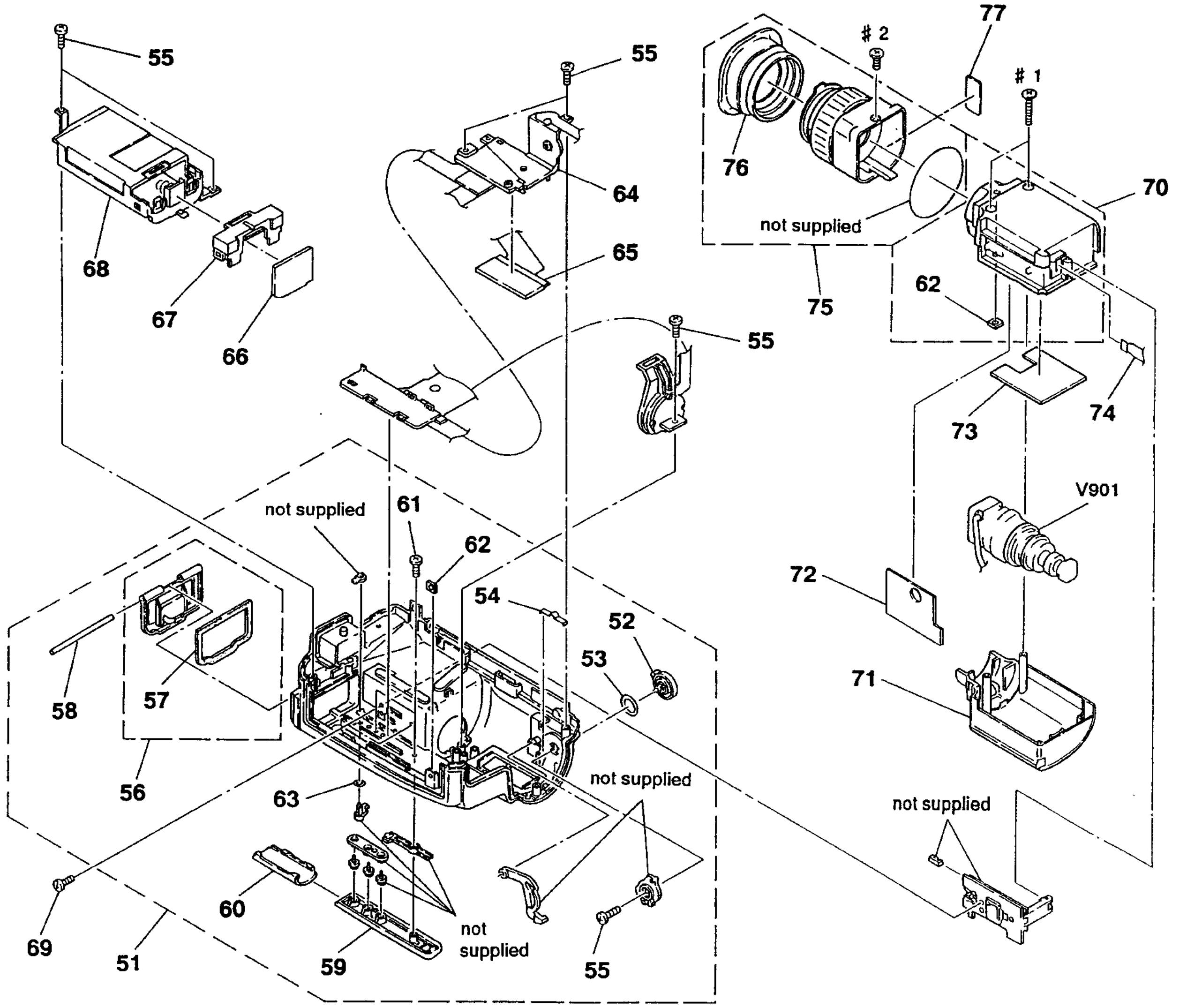
Ref. No.	Part No.	Description	Remark
1	X-3942-206-1	CABINET (L) ASSY	
2	3-948-905-01	BELT, GRIP	
3	3-948-913-01	SHAFT, BELT	
4	3-948-927-01	COVER, JACK	
5	3-948-922-01	BRACKET (L), STRAP	
6	3-713-786-01	SCREW (M2X4)	
7	3-948-921-01	COVER, FUNCTION	
∗ 8	3-950-507-01	SHAFT, F DOOR	
9	X-3942-230-1	ARM ASSY, FRONT LID	
10	3-719-381-31	SCREW (M2X3)	
11	X-3941-900-1	ARM ASSY, LID	
12	3-719-601-21	SCREW (B2X5), TAPPING	
13	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)	
∗ 14	3-949-027-01	COVER, FK	
15	3-719-601-11	SCREW (B2X5), TAPPING	
16	A-7071-736-A	RE-23 BOARD, COMPLETE	
17	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO OUT)	
18	3-949-028-01	PLATE, ORNAMENTAL, CABINET (L)	
19	3-719-601-01	SCREW (B2X5), TAPPING	
∗ 20	3-949-026-11	CASE, CASSETTE	

Ref. No.	Part No.	Description	Remark
21	3-728-126-11	SCREW (M1.4X2.5), SPECIAL HEAD	
22	3-719-381-11	SCREW (M2X5)	
23	X-3942-203-1	PANEL ASSY, F	
24	3-948-931-01	COVER (F), JACK	
25	3-657-842-01	SPACER (3X4)	
∗ 26	3-950-033-01	RING (7.4X5X1.2), O	
27	3-951-604-01	CUSHION (B), LENS	
28	3-950-590-01	SCREW (B2) (2X7), TAPPING	
29	1-542-190-11	MICROPHONE UNIT	
30	X-3941-910-1	GRILLE ASSY, WINDOW	
31	A-7071-735-A	MA-164 BOARD, COMPLETE	
32	A-7071-740-A	RE-22 BOARD, COMPLETE	
33	3-719-381-01	SCREW (M2X4)	
34	X-3942-550-1	CABINET (BOTTOM) ASSY	
∗ 35	3-950-397-01	LABEL, MODEL NUMBER (AEP)	
∗ 35	3-951-498-01	LABEL, MODEL NUMBER (UK)	
36	3-724-437-01	SCREW (2X4)	
37	1-693-192-21	REMOTE COMMANDER (RMT-703)	
38	3-950-097-01	COVER BATTERY, REMOCON	
39	3-950-096-01	HOLDER, REMOTE CONTROL	

5-2. CABINET (R) ASSEMBLY



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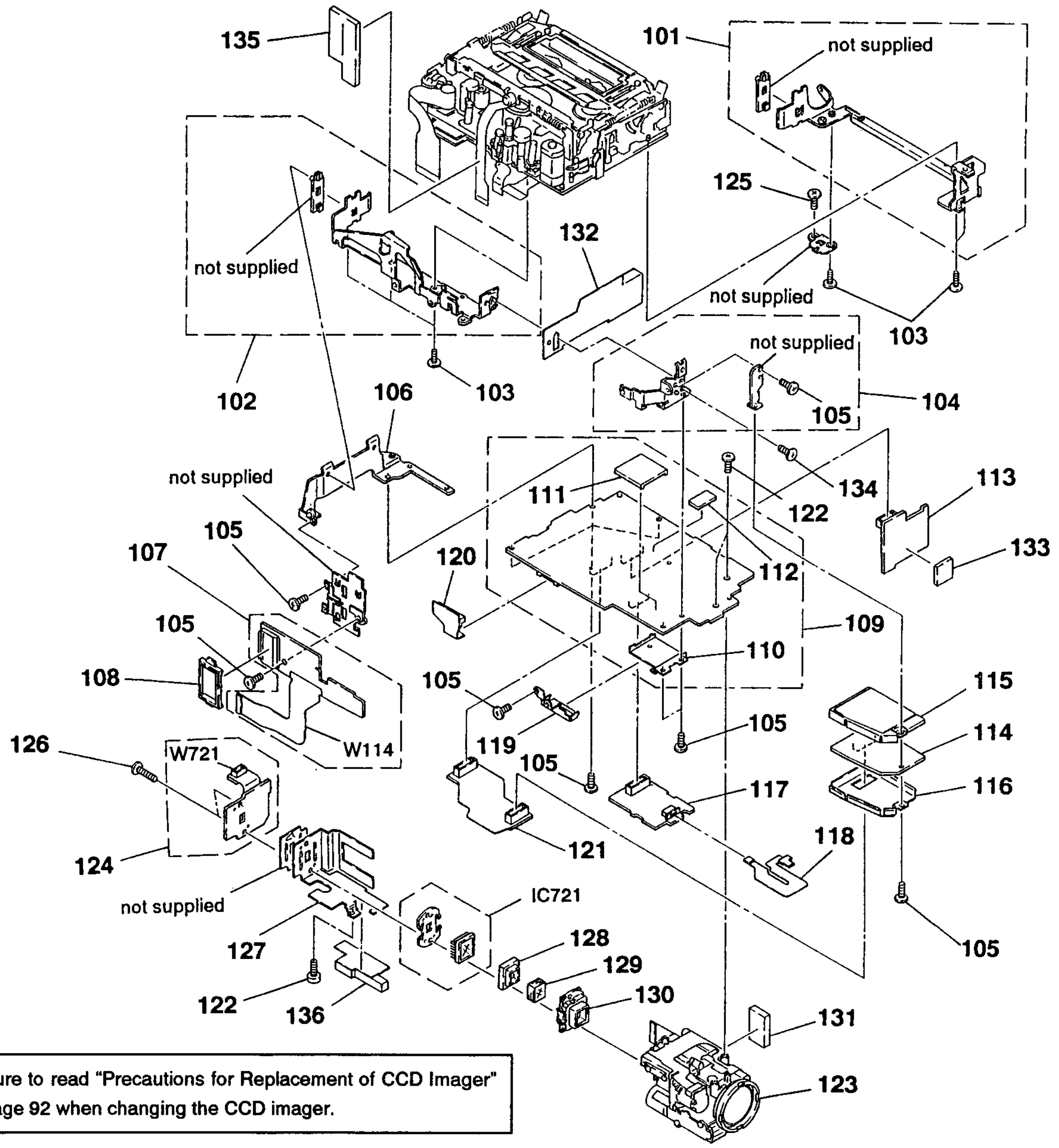
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	X-3942-205-1	CABINET (R) ASSY	
52	3-948-895-01	KNOB, POWER	
53	3-379-467-01	RING (DIA. 9.4), O	
54	3-948-896-01	SPRING, LEAF	
55	3-719-601-01	SCREW (B2X5), TAPPING	
56	X-3942-286-1	LID ASSY, BATTERY	
57	3-950-032-01	RUBBER (BATTERY), WATERPROOF	
58	3-948-864-01	SHAFT, BATTERY LID	
59	3-950-125-11	RAIL, COVER	
60	3-950-243-01	COVER, SLIDE	
61	3-719-845-01	SCREW (B2X4), TAPPING	
62	3-718-233-01	NUT, PLATE	
∗ 63	3-949-434-01	RING (4X3X0.5), O	
64	1-466-757-11	SWITCH BLOCK, CONTROL (CF-33)	
65	1-809-898-11	DISPLAY PANEL, LIQUID CRYSTAL	

Ref. No.	Part No.	Description	Remark
66	A-7071-739-A	FU-111 BOARD, COMPLETE	
67	1-537-436-11	TERMINAL BOARD, BATTERY	
68	X-3942-229-1	HOLDER ASSY, BATTERY	
69	3-719-381-11	SCREW (M2X5)	
70	X-3941-941-1	CABINET (L) ASSY, VF	
71	X-3942-384-1	CABINET (R) ASSY, VF	
72	A-7063-405-A	VF-56 BOARD, COMPLETE	
73	A-7063-404-A	VF-55 BOARD, COMPLETE	
74	1-645-053-12	FP-603 FLEXIBLE BOARD	
75	X-3941-940-1	FINDER ASSY	
76	3-951-104-01	EYE CUP	
∗ 77	3-704-235-01	LABEL, CAUTION (UK)	
⚠V901	1-452-673-11	CRT ASSY (M01KXX90WB)	

5-3. MAIN BOARDS ASSEMBLY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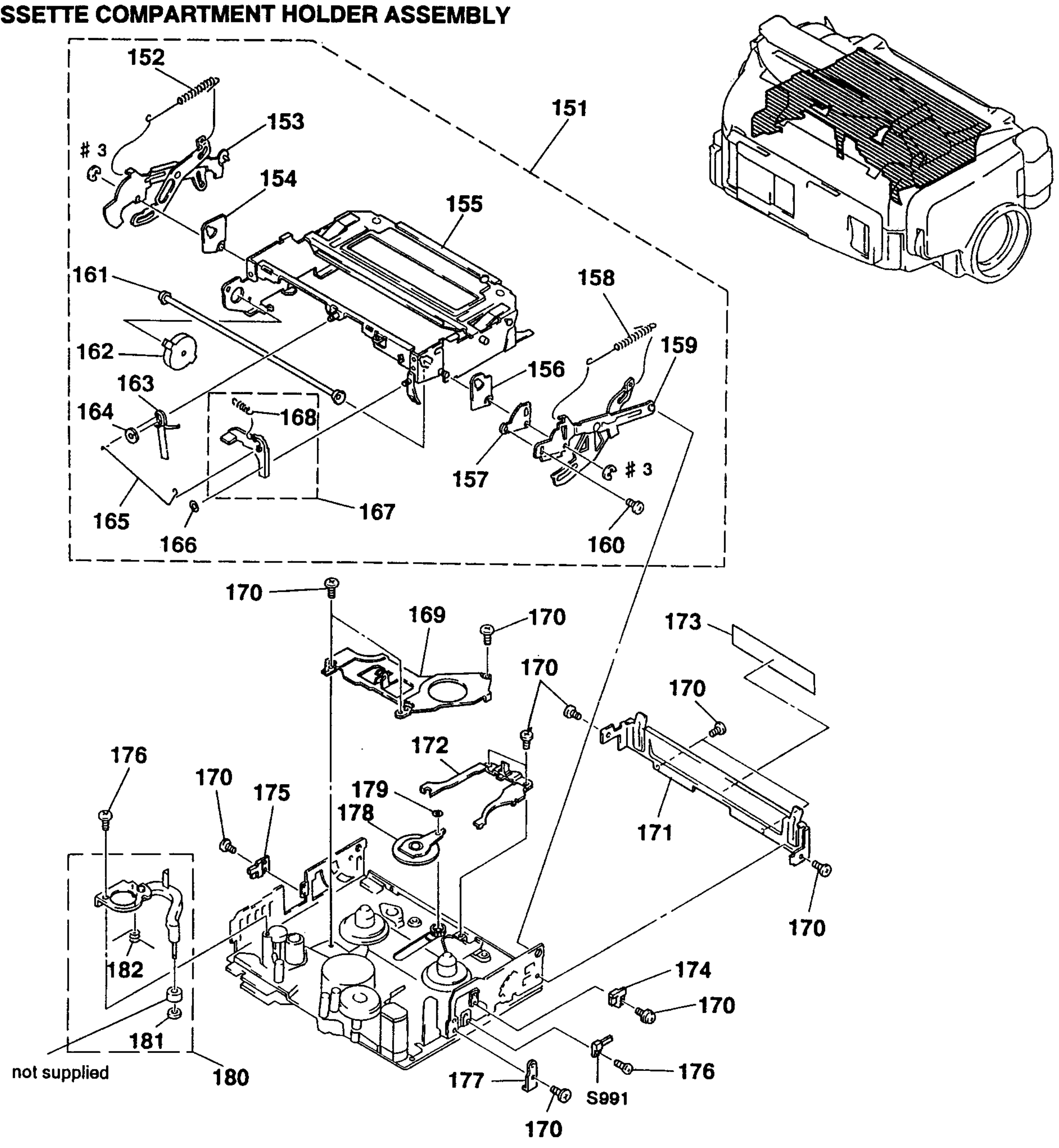
* Be sure to read "Precautions for Replacement of CCD Imager" on page 92 when changing the CCD imager.

Ref. No.	Part No.	Description	Remark
* 101	X-3941-906-1	HOLDER (UPPER) ASSY, MD	
* 102	X-3941-907-1	HOLDER (LOWER) ASSY, MD	
103	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
* 104	X-3941-908-1	FRAME (FRONT) ASSY	
105	3-713-786-51	SCREW (M2X3)	
* 106	3-949-022-01	FRAME (REAR)	
107	A-7071-738-A	EZ-3 BOARD, COMPLETE	
108	3-952-205-01	GUIDE, TERMINAL BOARD	
109	A-7063-403-A	VC-129 BOARD, COMPLETE	
* 110	3-949-011-01	CASE (A), SHIELD, RP	
* 111	3-949-023-01	CASE (B), SHIELD, RP	
* 112	1-646-828-11	DB-10 BOARD	
113	A-7071-734-A	LD-63 BOARD, COMPLETE	
114	A-7063-401-A	DD-54 BOARD, COMPLETE	
* 115	X-3941-909-1	CASE ASSY, SHIELD, DD	
* 116	X-3942-190-1	LID ASSY, DD SHIELD CASE	
117	A-7063-402-A	AU-146 BOARD, COMPLETE	
118	1-644-941-11	FP-540 FLEXIBLE BOARD	
* 119	3-950-358-01	LID, RP CONNECTOR	
120	1-644-943-11	FP-550 FLEXIBLE BOARD	
121	1-644-947-11	FP-537 FLEXIBLE BOARD	
122	3-719-845-01	SCREW (B2X4), TAPPING	
123	8-848-700-01	DEVICE, LENS LSV-100A	
124	A-7071-733-A	CD-101 BOARD, COMPLETE	
125	3-719-601-01	SCREW (B2X5), TAPPING	
126	3-947-268-11	SCREW (B TIGHT)(2X7.5),TAPPING	
* 127	3-949-025-01	HEAT SINK, CD	
128	3-949-283-01	RUBBER (2), SEAL	
129	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)	
130	3-949-282-01	ADAPTOR (EM), CCD FITTING	
131	3-951-443-01	CUSHION (A), LENS	
132	3-951-869-01	SHEET, FRONT	
133	3-951-871-01	SPACER, LD	
134	3-719-381-01	SCREW (M2X4)	
135	3-951-878-01	CUSHION, D FLEXIBLE	
136	3-951-879-01	CUSHION	
IC721	A-7030-371-A	CCD BLOCK ASSY (AUTO) (ICX059AK-2) (CCD IMAGER)	
W114	1-644-946-11	FP-605 FLEXIBLE BOARD	
W721	1-644-944-11	FP-580 FLEXIBLE BOARD	

5-4. CASSETTE COMPARTMENT HOLDER ASSEMBLY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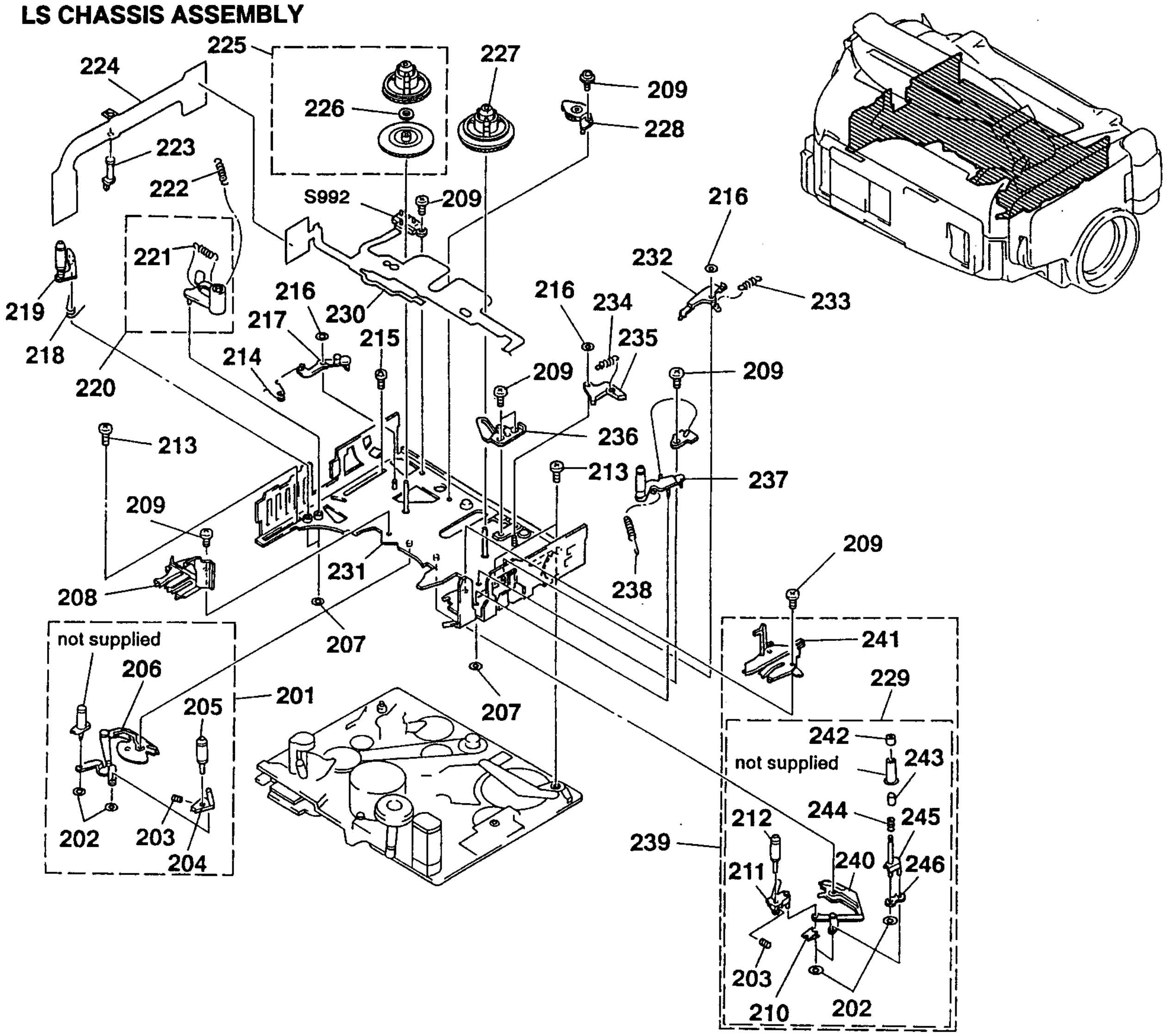
Ref. No.	Part No.	Description	Remark
151	A-7040-255-A	HOLDER BLOCK ASSY (L)	
152	3-739-872-01	SPRING, TENSION	
153	X-3940-677-1	ARM (T) ASSY (L), F	
154	3-728-145-01	BEARING (T), MIDWAY GEAR	
155	X-3940-680-1	HOLDER ASSY (L)	
156	3-728-146-01	BEARING (S), MIDWAY GEAR	
157	3-739-808-01	PLATE (2), ADJUSTMENT, C ARM	
158	3-739-873-01	SPRING, TENSION	
159	X-3940-678-1	ARM (S) ASSY (L), F	
160	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD	
161	X-3727-920-1	GEAR ASSY, MIDWAY	
162	X-3739-809-1	DAMPER ASSY (2)	
163	X-3940-991-1	PROTECTOR ASSY (2), T	
164	3-749-304-01	WASHER, STOPPER	
165	3-728-277-01	BAR, JOINT	
166	3-331-007-11	WASHER	
167	A-7040-164-A	ARM BLOCK ASSY, TP	

Ref. No.	Part No.	Description	Remark
168	3-509-127-00	SPRING, TENSION	
169	3-951-964-01	BASE, LED	
170	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
171	3-943-055-01	FRAME (L), LS	
172	X-3940-675-1	BASE ASSY (L), RL	
173	3-943-701-01	LABEL, CAUTION	
174	3-727-957-01	HOLDER (S), SENSOR	
175	3-727-954-01	HOLDER (T), SENSOR	
176	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
177	3-727-946-01	SUPPORT, LS	
178	X-3727-926-1	ARM ASSY, GEAR	
179	3-315-414-31	WASHER	
180	A-7040-264-D	ROLLER BLOCK ASSY, HC	
181	3-321-393-11	WASHER, STOPPER	
182	3-943-439-02	SPRING, TORSION	
S991	1-572-611-11	SWITCH, LEAF (C LOCK)	

5-5. LS CHASSIS ASSEMBLY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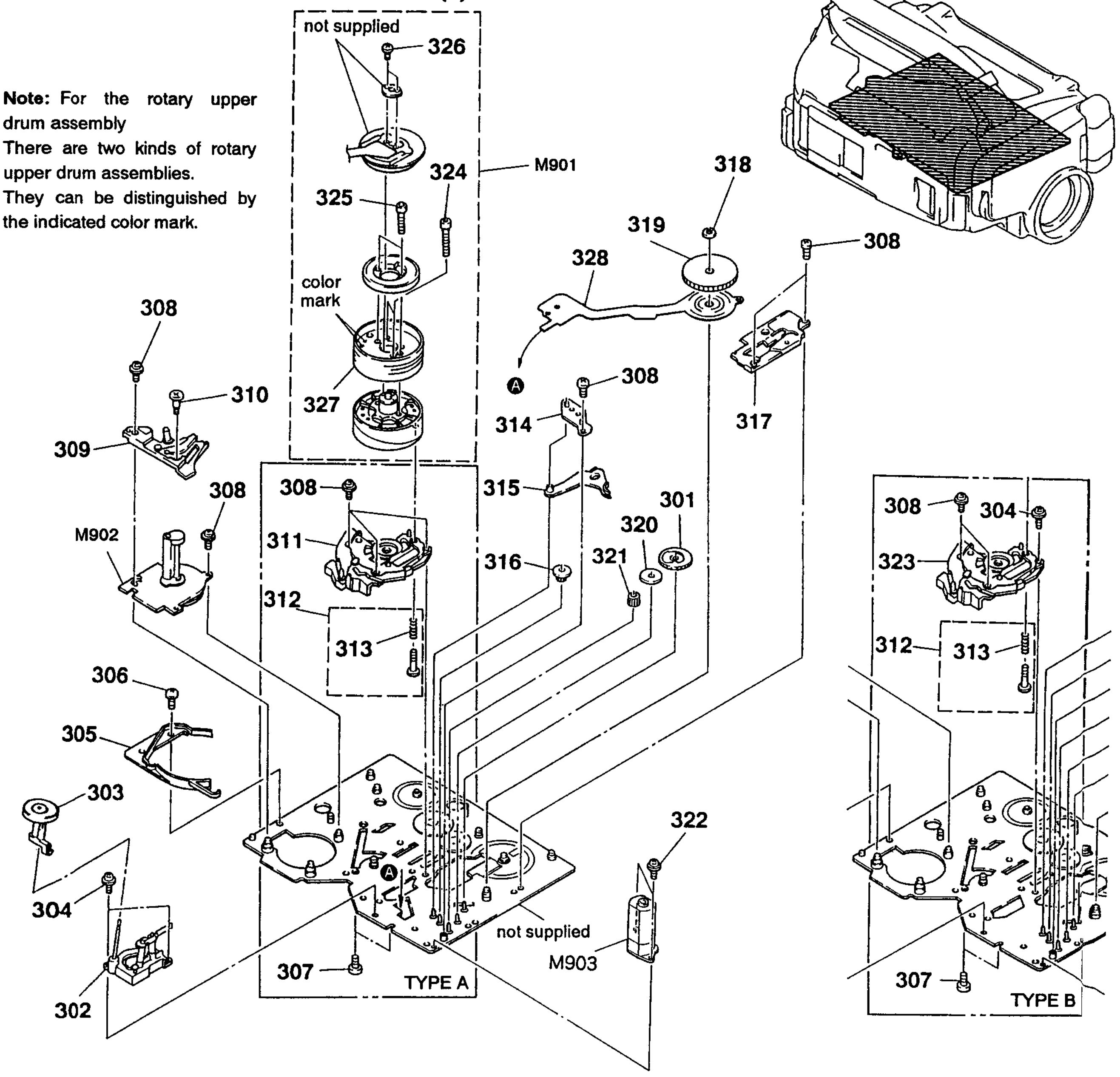
Ref. No.	Part No.	Description	Remark
201	A-7040-148-A	ARM (T) BLOCK ASSY, GUIDE	
202	3-331-007-11	WASHER	
203	3-728-290-01	SCREW (M1.2)	
204	X-3727-947-1	BASE ASSY, TG7	
205	X-3727-994-1	ROLLER ASSY, TG8	
206	X-3727-940-1	ARM (T) ASSY, GUIDE	
207	3-315-414-31	WASHER	
208	3-728-244-01	RAIL (T), GUIDE	
209	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
210	3-728-062-01	SPRING (6GB), LEAF	
211	X-3727-948-1	BASE ASSY, TG6	
212	X-3940-733-1	ROLLER ASSY (3), TG5	
213	3-941-601-01	SCREW (M1.4X2.5), SPECIAL HEAD	
214	3-732-068-01	SPRING (JD), RATCHET	
215	3-732-085-01	SCREW (1.2X1.6), SPECIAL HEAD	
216	3-728-091-01	WASHER, STOPPER	
217	X-3728-005-1	RATCHET ASSY (JD), T	
218	3-727-939-01	SPRING (JD), TORSION	
219	A-7040-252-A	ARM BLOCK ASSY (L), TG11	
220	A-7040-240-A	ARM BLOCK ASSY (JD), PINCH	
221	3-727-927-01	SPRING (POWER TENSION),TENSION	
222	3-732-089-01	SPRING (JD), TENSION	
223	3-739-807-01	SHAFT (2), FLEXIBLE ROTARY	
224	1-645-057-11	FP-574 FLEXIBLE BOARD	
225	X-3727-951-2	TABLE ASSY, REEL, TAKE-UP	
226	3-701-439-11	WASHER	
227	X-3727-952-1	TABLE ASSY, REEL, SUPPLY	
228	X-3727-914-4	CLUTCH ASSY, ONEWAY	
229	A-7040-262-C	ARM (S) BLOCK ASSY (3), GUIDE	
230	A-7062-792-A	FP-423 BLOCK ASSY	
231	X-3940-681-3	CHASSIS ASSY (L), LS	
232	3-732-077-01	RATCHET (JD), S	
233	3-732-076-01	SPRING (JD), TENSION	
234	3-732-078-01	SPRING (JD), TENSION	
235	3-732-079-01	ARM (JD), S SOFT	
236	3-728-206-01	PLATE, CAM, LS	
237	X-3749-001-1	ARM ASSY (JD), TG1	
238	3-940-616-03	SPRING (JD), TENSION	
239	A-7040-263-A	RAIL(S)BLOCK ASSY(3)(JD),GUIDE	
240	X-3727-941-1	ARM (S) ASSY, GUIDE	
241	3-728-226-01	RAIL (S) (JD), GUIDE	
242	3-943-822-01	FLANGE (P), TG4 UPPER	
243	3-728-048-01	SLEEVE, TG4	
244	3-728-023-01	SPRING, COMPRESSION	
245	X-3727-936-2	BASE ASSY, TG4	
246	3-728-053-01	PLATE, UNDER, TG4	
S992	1-572-802-12	SWITCH, PUSH (3 KEY)	(REC PROOF, ME/MP, Hi8 MP)

5-6. MECHANISM CHASSIS ASSEMBLY (1)

Note: For the rotary upper drum assembly
There are two kinds of rotary upper drum assemblies.
They can be distinguished by the indicated color mark.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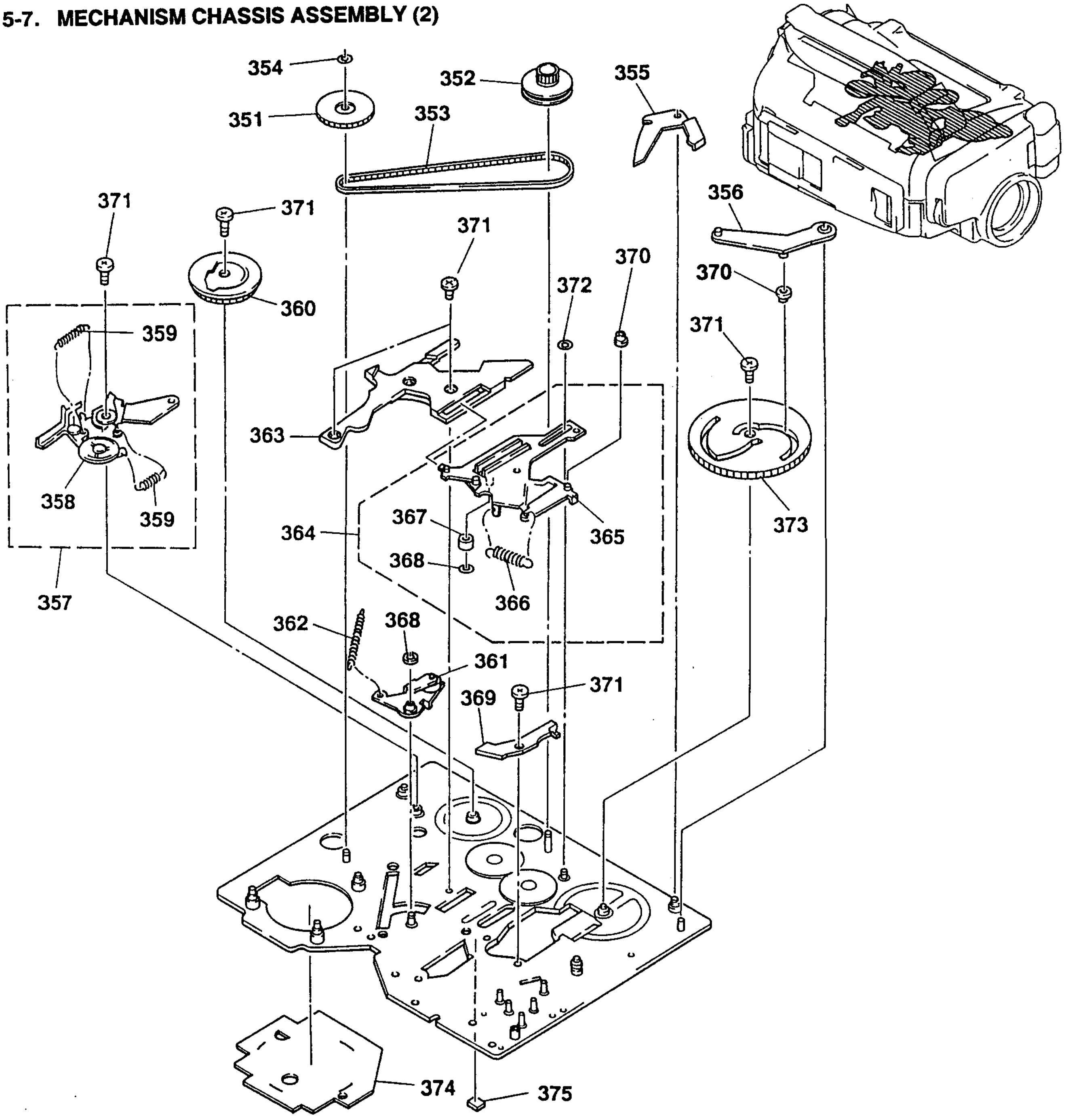
Ref. No.	Part No.	Description	Remark
301	3-728-189-02	GEAR, NO. 3	
302	X-3941-929-1	RAIL (BASE) (1) ASSY (B), GUIDE	
303	X-3941-930-1	ROLLER ASSY, IP	
304	3-703-816-51	SCREW (M1.4X3.5), SPECIAL HEAD	
305	3-732-064-01	COVER, ROTOR	
306	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD	
307	3-728-108-01	SCREW (M1.4X4.5)	
308	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
309	X-3941-027-2	RAIL (BASE) (3) ASSY (3), GUIDE	
310	3-732-084-01	SCREW (M1.4), SPECIAL HEAD	
* 311	A-7040-222-D	BASE (M) BLOCK ASSY, DRUM (TYPE A)	
312	X-3728-009-2	SCREW ASSY, FITTING	
313	3-743-633-01	SPRING, COMPRESSION	
314	3-728-119-01	RETAINER, GEAR	
315	X-3727-906-1	ARM ASSY	
316	X-3727-903-1	GEAR ASSY, NO. 1	
317	3-728-231-06	BASE, TG-1 CAM	
318	3-579-788-01	WASHER, STOPPER	
319	X-3727-915-1	GEAR ASSY, MODE	
320	X-3727-904-1	GEAR ASSY, NO. 2	
321	3-728-149-01	GEAR, NO. 0	
322	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
* 323	A-7040-203-G	BASE (A) BLOCK ASSY, DRUM (TYPE B)	
324	3-727-809-02	SCREW (M1.4X5), HEXAGON HOLE	
325	3-727-807-03	SCREW (M1.7X3.3), HEXAGON HOLE	
326	3-728-108-41	SCREW (M1.4X2.7)	
327	A-7049-461-A	DRUM ASSY, UPPER ROTARY (DGR-80-R-(1)) (COLOR MARK; GREEN, GREEN/RED, BLACK, BLACK/RED)	
327	A-7049-464-A	DRUM ASSY, UPPER ROTARY (DGR-80-R-(2)) (COLOR MARK; RED, RED/RED, BLUE, BLUE/RED)	
328	1-645-056-12	FP-573 FLEXIBLE BOARD	
M901	A-7048-660-A	DRUM BLOCK ASSY (DGH-80B-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA) (LOADING)	

5-7. MECHANISM CHASSIS ASSEMBLY (2)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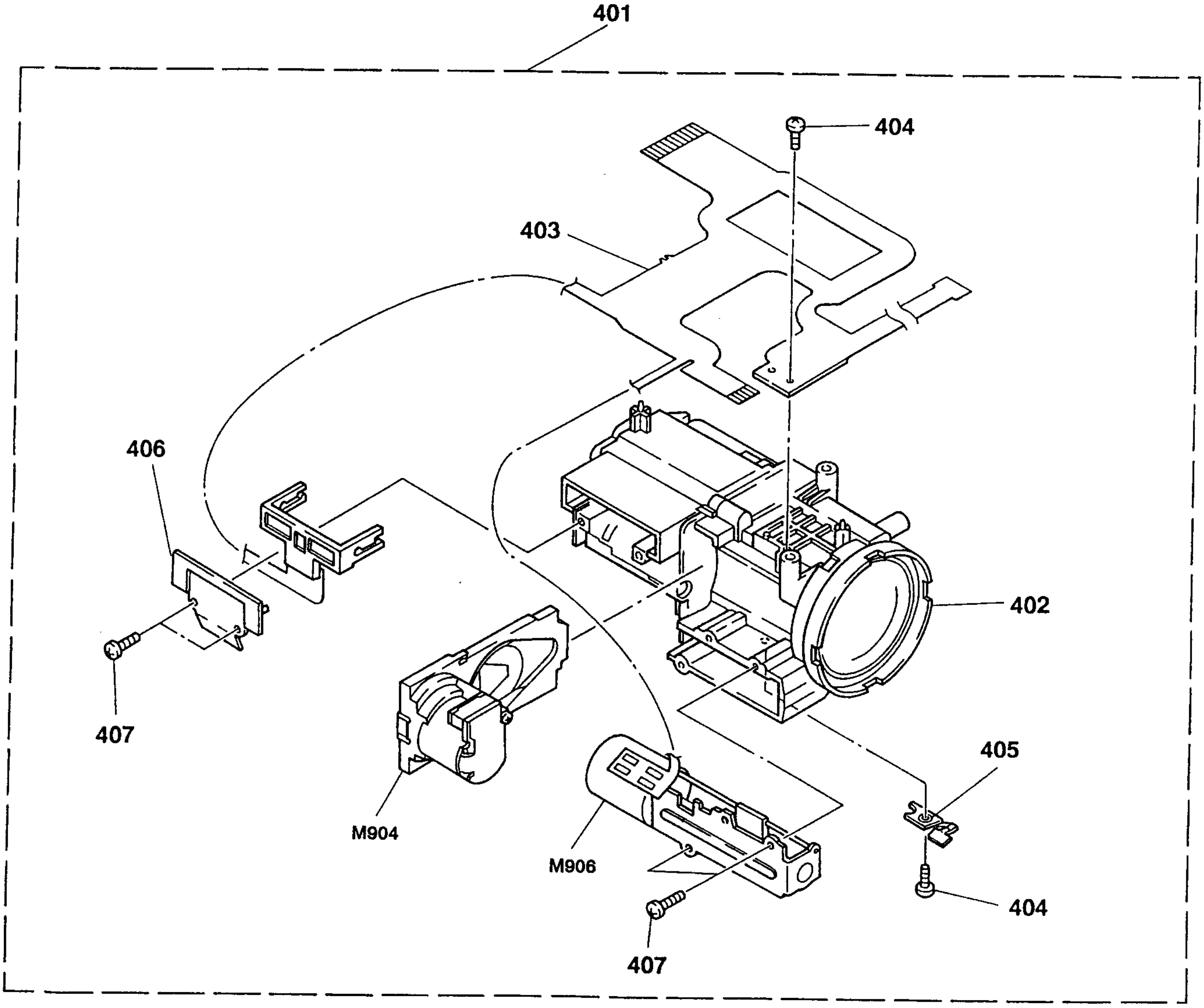
Ref. No.	Part No.	Description	Remark
351	X-3727-930-1	GEAR ASSY, CONVERSION	
352	X-3727-931-1	PULLEY ASSY, MIDWAY	
353	3-728-212-01	BELT, RELAY	
354	3-728-091-01	WASHER, STOPPER	
355	3-728-154-01	ARM, EJ	
356	3-941-980-01	ARM (T), LS	
357	A-7040-152-A	ARM BLOCK ASSY, PINCH PRESS	
358	X-3940-335-1	ARM ASSY, PINCH PRESS	
359	3-728-065-01	SPRING, TENSION	
360	3-728-190-01	CAM (B)	
361	X-3727-924-2	ARM ASSY, GUIDE LOCK	
362	3-728-015-01	SPRING (POWER TENSION), TENSION	
363	3-728-228-03	SUPPORT (T), GL	
364	A-7040-153-A	SLIDER BLOCK ASSY, GL	
365	X-3941-931-1	SLIDER ASSY, GL	
366	3-727-929-01	SPRING (POWER TENSION), TENSION	
367	3-728-144-01	ROLLER, GL	
368	3-331-007-11	WASHER	
369	3-728-213-01	SUPPORT (S), GL	
370	3-728-109-01	ROLLER, LS	
371	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD	
372	3-315-384-31	WASHER, STOPPER	
373	3-942-925-01	CAM (A) (L)	
374	3-942-901-01	COVER (L), CAPSTAN	
375	3-743-634-01	SPACER, RUBBER	

5-8. LENS DEVICE ASSEMBLY (LSV-100A)



Ref. No.	Part No.	Description	Remark
401	8-848-700-01	DEVICE, LENS LSV-100A	
402	A-4910-494-A	LSV-100 OPTICS ASSY (RP)	
403	A-4910-479-A	FLEXIBLE BLOCK ASSY, M	
404	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
405	2-626-179-01	HOLDER, Z END	
406	2-626-144-01	RETAINER, MR	
407	3-713-791-41	SCREW (M1.7X5), TAPPING, P2	
M904	1-547-574-11	IRIS (IRX-002)	
M906	8-835-491-01	MOTOR, STEPPING (SPB-01S01N) (ZOOM)	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Addresses have been displayed according to the numbers of diagrams in the Electrical Parts List on the VC-129 board.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remark
	A-7063-402-A	AU-146 BOARD, COMPLETE	
		***********************	
		(Ref. No 3,000 Series)	
		< CAPACITOR >	
C801	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C802	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C803	1-164-346-11	CERAMIC CHIP 1uF 16V	
C804	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C805	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C806	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C807	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 16V	
C808	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C809	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C810	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C811	1-135-334-11	TANTAL. CHIP 100uF 20% 6.3V	
C812	1-135-217-21	TANTALUM CHIP 15uF 20% 6.3V	
C814	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C815	1-135-336-11	TANTAL. CHIP 47uF 20% 6.3V	
C816	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C817	1-135-254-11	TANTAL. CHIP 47uF 20% 4V	
C818	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C819	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C820	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V	
C821	1-162-977-11	CERAMIC CHIP 0.0018uF 10% 50V	
C823	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C824	1-164-940-11	CERAMIC CHIP 0.0033uF 10% 16V	
C825	1-164-942-11	CERAMIC CHIP 0.0068uF 10% 16V	
C826	1-164-910-11	CERAMIC CHIP 47PF 5% 16V	
C827	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C828	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C829	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C830	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C831	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C832	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C833	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C834	1-164-346-11	CERAMIC CHIP 1uF 16V	
C835	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C836	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C837	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C838	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 16V	
C839	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C840	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C841	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C843	1-135-335-11	TANTAL. CHIP 100uF 20% 4V	
C844	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C845	1-135-217-21	TANTALUM CHIP 15uF 20% 6.3V	
C846	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C847	1-135-336-11	TANTAL. CHIP 47uF 20% 6.3V	
C849	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C850	1-135-254-11	TANTAL. CHIP 47uF 20% 4V	
C851	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C852	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C853	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V	
C854	1-162-977-11	CERAMIC CHIP 0.0018uF 10% 50V	
C856	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C857	1-164-940-11	CERAMIC CHIP 0.0033uF 10% 16V	
C858	1-164-942-11	CERAMIC CHIP 0.0068uF 10% 16V	
C859	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C860	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C861	1-164-910-11	CERAMIC CHIP 47PF 5% 16V	
C862	1-164-916-11	CERAMIC CHIP 82PF 5% 16V	
C863	1-164-346-11	CERAMIC CHIP 1uF 16V	
C864	1-164-346-11	CERAMIC CHIP 1uF 16V	
C865	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C866	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C867	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C869	1-135-335-11	TANTAL. CHIP 100uF 20% 4V	
C870	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C873	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C874	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C875	1-164-346-11	CERAMIC CHIP 1uF 16V	
C876	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C877	1-164-346-11	CERAMIC CHIP 1uF 16V	
C878	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C879	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C880	1-135-202-21	TANTAL. CHIP 22uF 20% 4V	
C881	1-135-334-11	TANTAL. CHIP 100uF 20% 6.3V	
C882	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C883	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C884	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C885	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C886	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C887	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C888	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C889	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C890	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	

AU-146

Ref. No.	Part No.	Description	Remark
C891	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C892	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C893	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C894	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
C895	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 16V	
C896	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 16V	
		< CONNECTOR >	
CN801	1-695-323-21	CONNECTOR, BOARD TO BOARD	
CN802	1-691-346-11	CONNECTOR, FFC/FPC 8P	
		< FILTER >	
FL801	1-239-350-11	FILTER, BAND PASS (1.5MHz)	
FL802	1-239-351-11	FILTER, BAND PASS (1.7MHz)	
		< IC >	
IC801	8-759-823-19	IC CXA1488R	
IC802	8-759-075-68	IC TC4066BFS	
IC803	8-759-823-21	IC CXA1536Q	
IC804	8-759-823-19	IC CXA1488R	
		< TRANSISTOR >	
Q801	8-729-427-72	TRANSISTOR XP4501	
Q802	8-729-427-46	TRANSISTOR XP4213	
Q803	8-729-427-72	TRANSISTOR XP4501	
Q804	8-729-427-72	TRANSISTOR XP4501	
Q805	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q806	8-729-429-50	TRANSISTOR XP4312	
Q807	8-729-427-70	TRANSISTOR XP4401	
Q808	8-729-428-51	TRANSISTOR XP6215	
Q809	8-729-429-22	TRANSISTOR UN9215-QRS	
		< RESISTOR >	
R801	1-218-968-11	METAL GLAZE 18K 5% 1/16W	
R802	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R803	1-218-972-11	METAL GLAZE 39K 5% 1/16W	
R804	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R805	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R806	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R807	1-218-942-11	METAL GLAZE 120 5% 1/16W	
R811	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R812	1-220-398-11	METAL GLAZE 1.5M 5% 1/16W	
R814	1-218-983-11	METAL GLAZE 330K 5% 1/16W	
R815	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R816	1-218-933-11	METAL GLAZE 22 5% 1/16W	
R817	1-218-968-11	METAL GLAZE 18K 5% 1/16W	
R818	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R819	1-218-972-11	METAL GLAZE 39K 5% 1/16W	
R820	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R821	1-218-965-11	METAL GLAZE 10K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R822	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R823	1-218-967-11	METAL GLAZE 15K 5% 1/16W	
R824	1-218-942-11	METAL GLAZE 120 5% 1/16W	
R828	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R829	1-220-398-11	METAL GLAZE 1.5M 5% 1/16W	
R830	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R832	1-218-983-11	METAL GLAZE 330K 5% 1/16W	
R833	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R834	1-218-981-11	METAL GLAZE 220K 5% 1/16W	
R835	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R836	1-218-980-11	METAL GLAZE 180K 5% 1/16W	
R837	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R838	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R839	1-218-951-11	METAL GLAZE 680 5% 1/16W	
R840	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R841	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R842	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R843	1-218-949-11	METAL GLAZE 470 5% 1/16W	
R844	1-218-945-11	METAL GLAZE 220 5% 1/16W	
R845	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R846	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R847	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R848	1-218-950-11	METAL GLAZE 560 5% 1/16W	
R849	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R850	1-216-795-11	METAL CHIP 6.8K 0.50% 1/16W	
R851	1-218-708-11	METAL CHIP 4.7K 0.50% 1/16W	
R852	1-218-968-11	METAL GLAZE 18K 5% 1/16W	
R853	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R854	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R855	1-218-955-11	METAL GLAZE 1.5K 5% 1/16W	
R856	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R857	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R858	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R859	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R860	1-218-956-11	METAL GLAZE 1.8K 5% 1/16W	
R861	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R862	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R863	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R864	1-218-957-11	METAL GLAZE 2.2K 5% 1/16W	
R865	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R866	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R867	1-218-981-11	METAL GLAZE 220K 5% 1/16W	
R868	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R870	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R871	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R872	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R873	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R874	1-218-954-11	METAL GLAZE 1.2K 5% 1/16W	
R875	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R876	1-218-954-11	METAL GLAZE 1.2K 5% 1/16W	

Ref. No.	Part No.	Description				Remark
R877	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R878	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R879	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R880	1-218-987-11	METAL GLAZE	680K	5%	1/16W	
R881	1-218-987-11	METAL GLAZE	680K	5%	1/16W	

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A-7071-733-A CD-101 BOARD, COMPLETE
****
(Ref. No 1,000 Series)

< CAPACITOR >

C721	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C722	1-128-013-11	ELECT CHIP	1uF	20%	50V
C723	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C724	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C725	1-162-637-11	CERAMIC CHIP	0.47uF		16V
C726	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C727	1-128-004-11	ELECT CHIP	10uF	20%	16V
C728	1-126-607-11	ELECT CHIP	47uF	20%	4V
C729	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C730	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< DIODE >

D721	8-719-421-71	DIODE	MA132WA
D722	8-719-421-69	DIODE	MA133
D723	8-719-421-71	DIODE	MA132WA

< COIL >

L721	1-412-032-11	INDUCTOR CHIP	100uH

< TRANSISTOR >

Q721	8-729-425-64	TRANSISTOR	2SD2216-Q
Q722	8-729-429-44	TRANSISTOR	XP1501
Q723	8-729-232-86	TRANSISTOR	2SK1875
Q724	8-729-102-07	TRANSISTOR	2SC2223-F13

< RESISTOR >

R723	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R724	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R725	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R726	1-218-975-11	METAL GLAZE	68K	5%	1/16W
R727	1-218-952-11	METAL GLAZE	820	5%	1/16W
R728	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R729	1-218-967-11	METAL GLAZE	15K	5%	1/16W
R730	1-218-982-11	METAL GLAZE	270K	5%	1/16W
R731	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R732	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R733	1-218-941-11	METAL GLAZE	100	5%	1/16W
R734	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W

Ref. No.	Part No.	Description	Remark

< FLEXIBLE BOARD >

W721	1-644-944-11	FP-580 FLEXIBLE BOARD

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1-646-828-11 DB-10 BOARD (Ref. No 4,000 Series)
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< CAPACITOR >

C001	1-164-156-11	CERAMIC CHIP	0.1uF	25V

< DIODE >

D001	8-719-023-31	DIODE	MA720-TX

< TRANSISTOR >

Q001	8-729-402-84	TRANSISTOR	XN4601

< RESISTOR >

R001	1-218-744-11	METAL CHIP	150K	0.50%	1/16W
R002	1-218-738-11	METAL CHIP	82K	0.50%	1/16W
R003	1-216-841-11	METAL CHIP	47K	5%	1/16W

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A-7063-401-A DD-54 BOARD, COMPLETE
****
(Ref. No 9,000 Series)

< CAPACITOR >

C351	1-135-340-11	TANTAL. CHIP	10uF	20%	20V
C352	1-135-340-11	TANTAL. CHIP	10uF	20%	20V
C353	1-135-340-11	TANTAL. CHIP	10uF	20%	20V
C354	1-137-307-11	FILM CHIP	470PF	2%	16V
C355	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C356	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C357	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C358	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C359	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C360	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C361	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C362	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C363	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C364	1-164-730-11	CERAMIC CHIP	0.0012uF	10%	50V
C365	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C366	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C367	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C368	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C369	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C370	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C371	1-164-936-11	CERAMIC CHIP	680PF	10%	16V

DD-54

Ref. No.	Part No.	Description	Remark
C372	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C373	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C374	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C375	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C376	1-164-935-11	CERAMIC CHIP 470PF 10% 16V	
C377	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C378	1-164-936-11	CERAMIC CHIP 680PF 10% 16V	
C379	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C380	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C381	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C382	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C383	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C384	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C385	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C386	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C387	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C388	1-164-830-11	CERAMIC CHIP 1uF 22% 16V	
C389	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C390	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C391	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C392	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C393	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C394	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C395	1-164-337-11	CERAMIC CHIP 2.2uF 16V	
C396	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C397	1-164-506-11	CERAMIC CHIP 4.7uF 16V	
C398	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
		< CONNECTOR >	
CN351	1-580-789-21	PIN, CONNECTOR (SMD) 6P	
CN352	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P	
		< DIODE >	
D351	8-719-027-77	DIODE MA796	
		< IC >	
IC351	8-759-060-94	IC MB3785APFV-G-BND-ER	
IC352	8-759-062-00	IC MB3788PFV	
		< COIL >	
L355	1-424-673-11	COIL, CHOKE 4.7uH	
L356	1-424-674-11	COIL, CHOKE 22uH	
L357	1-424-674-11	COIL, CHOKE 22uH	
L358	1-424-653-11	COIL, CHOKE 10uH	
L359	1-424-653-11	COIL, CHOKE 10uH	
L360	1-424-674-11	COIL, CHOKE 22uH	
L361	1-424-674-11	COIL, CHOKE 22uH	
L362	1-424-675-11	COIL, CHOKE 33uH	
L363	1-412-027-11	INDUCTOR CHIP 2.2uH	
L364	1-414-118-11	INDUCTOR 4.7uH	
L365	1-412-028-11	INDUCTOR CHIP 4.7uH	
L366	1-412-033-11	INDUCTOR CHIP 220uH	
L367	1-412-033-11	INDUCTOR CHIP 220uH	
L368	1-412-027-11	INDUCTOR CHIP 2.2uH	
L369	1-412-028-11	INDUCTOR CHIP 4.7uH	
L370	1-412-028-11	INDUCTOR CHIP 4.7uH	
L371	1-412-028-11	INDUCTOR CHIP 4.7uH	
		< TRANSISTOR >	
Q351	8-729-823-95	TRANSISTOR FC149	
Q352	8-729-823-82	TRANSISTOR FP101	
Q353	8-729-823-82	TRANSISTOR FP101	
Q354	8-729-804-41	TRANSISTOR 2SB1122-S	
Q355	8-729-823-84	TRANSISTOR FP102	
Q356	8-729-823-84	TRANSISTOR FP102	
Q357	8-729-823-82	TRANSISTOR FP101	
Q358	8-729-017-10	TRANSISTOR 2SJ244JY	
Q360	8-729-428-88	TRANSISTOR UN9113	
		< RESISTOR >	
R351	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R352	1-218-707-11	METAL CHIP 4.3K 0.50% 1/16W	
R353	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R354	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R355	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R356	1-218-972-11	METAL GLAZE 39K 5% 1/16W	
R357	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R360	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R361	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R362	1-218-714-11	METAL CHIP 8.2K 0.50% 1/16W	
R363	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R364	1-218-721-11	METAL CHIP 16K 0.50% 1/16W	
R365	1-218-979-11	METAL GLAZE 150K 5% 1/16W	
R366	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R367	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R368	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R369	1-216-804-11	METAL CHIP 39 5% 1/16W	
R370	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R371	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R372	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R373	1-218-727-11	METAL CHIP 30K 0.50% 1/16W	
R374	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R375	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R376	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R377	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R378	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R379	1-218-295-11	METAL CHIP 5.6K 0.50% 1/16W	
R380	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R381	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R382	1-216-864-11	METAL CHIP 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R383	1-216-819-11	METAL CHIP 680 5% 1/16W	
R384	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R387	1-218-704-11	METAL CHIP 3.3K 0.50% 1/16W	
R388	1-216-033-00	METAL CHIP 220 5% 1/10W	
R389	1-216-033-00	METAL CHIP 220 5% 1/10W	
R390	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R391	1-216-041-00	METAL CHIP 470 5% 1/10W	
R392	1-216-041-00	METAL CHIP 470 5% 1/10W	
R393	1-216-041-00	METAL CHIP 470 5% 1/10W	
R394	1-216-041-00	METAL CHIP 470 5% 1/10W	
R395	1-216-009-00	METAL CHIP 22 5% 1/10W	
R396	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R397	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R398	1-218-960-11	METAL GLAZE 3.9K 5% 1/16W	
R399	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R400	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
		< TRANSFORMER >	
T351	1-450-976-11	TRANSFORMER, CONVERTER	

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	A-7071-738-A	EZ-3 BOARD, COMPLETE	
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			(Ref. No 3,000 Series)
		< CAPACITOR >	
C101	1-164-361-11	CERAMIC CHIP 0.047uF 16V	
C104	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C105	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C151	1-162-960-11	CERAMIC CHIP 220PF 10% 50V	
C152	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C153	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C154	1-135-210-11	TANTALUM CHIP 4.7uF 20% 10V	
C155	1-135-210-11	TANTALUM CHIP 4.7uF 20% 10V	
C156	1-165-112-11	CERAMIC CHIP 0.33uF 16V	
C161	1-164-361-11	CERAMIC CHIP 0.047uF 16V	
		< CONNECTOR >	
CN111	1-580-789-21	PIN, CONNECTOR (SMD) 6P	
CN112	1-573-926-11	CONNECTOR, FFC/FPC (ZIF) 17P	
CN113	1-537-439-11	TARMINAL BOARD, CONNECTOR	
		< DIODE >	
D101	8-719-420-14	DIODE MA8082-M	
D102	8-719-420-14	DIODE MA8082-M	
D103	8-719-420-14	DIODE MA8082-M	
D104	8-719-420-14	DIODE MA8082-M	
D105	8-719-420-14	DIODE MA8082-M	
D106	8-719-420-14	DIODE MA8082-M	
D107	8-719-420-14	DIODE MA8082-M	

Ref. No.	Part No.	Description	Remark
D108	8-719-420-14	DIODE MA8082-M	
D109	8-719-420-90	DIODE MA8051-M	
D110	8-719-422-97	DIODE MA8091-M	
D111	8-719-404-46	DIODE MA110	
D112	8-719-420-14	DIODE MA8082-M	
D113	8-719-420-90	DIODE MA8051-M	
D114	8-719-404-46	DIODE MA110	
		< IC >	
IC101	8-759-075-97	IC LM358PW	
		< COIL >	
L161	1-414-117-11	INDUCTOR 1uH	
		< TRANSISTOR >	
Q100	8-729-429-18	TRANSISTOR UN9213	
Q101	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q102	8-729-428-88	TRANSISTOR UN9113	
Q103	8-729-429-18	TRANSISTOR UN9213	
Q104	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q105	8-729-429-18	TRANSISTOR UN9213	
Q106	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q107	8-729-429-02	TRANSISTOR UN9110-QRS	
Q108	8-729-428-88	TRANSISTOR UN9113	
Q109	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q110	8-729-018-47	TRANSISTOR 2SD2443	
Q111	8-729-017-56	TRANSISTOR 2SK2053(1)	
Q112	8-729-017-56	TRANSISTOR 2SK2053(1)	
Q113	8-729-428-88	TRANSISTOR UN9113	
Q114	8-729-429-18	TRANSISTOR UN9213	
Q115	8-729-429-18	TRANSISTOR UN9213	
Q116	8-729-429-18	TRANSISTOR UN9213	
Q117	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q118	8-729-429-32	TRANSISTOR UN9210-QRS	
Q151	8-729-425-73	TRANSISTOR 2SC4627-C	
Q152	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q153	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q154	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q155	8-729-429-18	TRANSISTOR UN9213	
Q156	8-729-429-18	TRANSISTOR UN9213	
Q161	8-729-427-70	TRANSISTOR XP4401	
Q162	8-729-101-07	TRANSISTOR 2SB798-DL	
		< RESISTOR >	
R101	1-218-985-11	METAL GLAZE 470K 5% 1/16W	
R102	1-218-985-11	METAL GLAZE 470K 5% 1/16W	
R103	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R104	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R105	1-218-973-11	METAL GLAZE 47K 5% 1/16W	

Ref.No.	Part No.	Description				Remark
R106	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R107	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R108	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R109	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R110	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R111	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R112	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R114	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R115	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R116	1-218-956-11	METAL GLAZE	1.8K	5%		
R117	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R118	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R119	1-218-941-11	METAL GLAZE	100	5%	1/16W	
R120	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R121	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R122	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R123	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R124	1-218-967-11	METAL GLAZE	15K	5%	1/16W	
R125	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R126	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R127	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R128	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R129	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R130	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R133	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R134	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R151	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R152	1-218-952-11	METAL GLAZE	820	5%	1/16W	
R152	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R153	1-218-947-11	METAL GLAZE	330	5%	1/16W	
R154	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R155	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R156	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R157	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R158	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R159	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W	
R161	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	
R162	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R163	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R164	1-216-791-11	METAL CHIP	3.3	5%	1/16W	
R165	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R166	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R167	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R168	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R169	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R170	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R171	1-218-941-11	METAL GLAZE	100	5%	1/16W	
R172	1-218-941-11	METAL GLAZE	100	5%	1/16W	

Ref.No.	Part No.	Description				Remark
		< FLEXIBLE BOARD >				
W114	1-644-946-11	FP-605 FLEXIBLE BOARD				

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A-7062-792-A FP-423 BLOCK ASSY (Ref. No 4,000 Series)
****

Ref.No.	Part No.	Description				Remark
	3-727-954-01	HOLDER (T), SENSOR				
	3-727-957-01	HOLDER (S), SENSOR				
	3-732-046-01	HOLDER, LED				
		< DIODE >				
D991	8-719-988-42	DIODE GL453S				
		< ELEMENT HALL >				
H991	1-808-448-11	ELEMENT HALL (CHIP TYPE)				
H992	1-808-448-11	ELEMENT HALL (CHIP TYPE)				
		< TRANSISTOR >				
Q991	8-729-907-25	TRANSISTOR PT4850F				
Q992	8-729-907-25	TRANSISTOR PT4850F				
		< RESISTOR >				
R991	1-216-817-11	METAL CHIP	470	5%	1/16W	
R992	1-216-817-11	METAL CHIP	470	5%	1/16W	
R993	1-216-817-11	METAL CHIP	470	5%	1/16W	
R994	1-216-817-11	METAL CHIP	470	5%	1/16W	
		< SWITCH >				
S991	1-572-611-11	SWITCH, LEAF (CASSETTE LOCK)				
S992	1-572-802-12	SWITCH, PUSH (3 KEY)				

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A-7071-739-A FU-111 BOARD, COMPLETE
****
(Ref. No 9,000 Series)

Ref.No.	Part No.	Description				Remark
		< IC LINK >				
⚠PS081	1-532-840-21	LINK, IC				
⚠PS082	1-532-840-21	LINK, IC				
⚠PS083	1-532-840-21	LINK, IC				

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A-7071-734-A LD-63 BOARD, COMPLETE
****
(Ref. No 3,000 Series)

Ref.No.	Part No.	Description				Remark
		< CAPACITOR >				
C751	1-164-947-11	CERAMIC CHIP	0.01uF		16V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
C752	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C753	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C754	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C755	1-164-346-11	CERAMIC CHIP 1uF 16V	
C756	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C757	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C758	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C759	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C760	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C761	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C762	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C763	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C764	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C765	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C766	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C767	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C768	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C769	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C771	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C772	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C773	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C775	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C776	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C777	1-164-947-11	CERAMIC CHIP 0.01uF 16V	
C778	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C779	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C780	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	
C781	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
CN751	1-573-935-11	CONNECTOR, FFC/FPC (ZIF) 26P	
CN752	1-691-539-11	CONNECTOR, BOARD TO BOARD 30P	

< IC >

Ref.No.	Part No.	Description	Remark
IC751	8-752-841-66	IC CXP80624A-013R	
IC752	8-752-355-56	IC CXD2104BN	
IC753	8-759-058-45	IC NJM3403AV	
IC754	8-759-058-41	IC NJM3416V	
IC755	8-759-059-03	IC LM324PW	
IC756	8-759-058-43	IC NJM3404AV	
IC757	8-759-058-41	IC NJM3416V	
IC758	8-759-058-47	IC MPC1724VM	

< COIL >

Ref.No.	Part No.	Description	Remark
L751	1-414-078-11	INDUCTOR 10uH	
L752	1-412-991-11	INDUCTOR 10uH	
L753	1-414-078-11	INDUCTOR 10uH	
L754	1-414-078-11	INDUCTOR 10uH	
L755	1-414-078-11	INDUCTOR 10uH	
L756	1-412-991-11	INDUCTOR 10uH	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q751	8-729-428-88	TRANSISTOR UN9113	
Q752	8-729-425-64	TRANSISTOR 2SD2216-Q	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R751	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R752	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R753	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R754	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R755	1-218-680-11	METAL CHIP 330 0.50% 1/16W	
R756	1-218-680-11	METAL CHIP 330 0.50% 1/16W	
R757	1-218-967-11	METAL GLAZE 15K 5% 1/16W	
R758	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R759	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R760	1-218-680-11	METAL CHIP 330 0.50% 1/16W	
R761	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R762	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R763	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R764	1-218-983-11	METAL GLAZE 330K 5% 1/16W	
R765	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R766	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R767	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R768	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R769	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R770	1-218-980-11	METAL GLAZE 180K 5% 1/16W	
R771	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R772	1-218-980-11	METAL GLAZE 180K 5% 1/16W	
R773	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R774	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R775	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R776	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R777	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R778	1-218-987-11	METAL GLAZE 680K 5% 1/16W	
R779	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R780	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R781	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R782	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R783	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R784	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R785	1-218-952-11	METAL GLAZE 820 5% 1/16W	
R786	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R787	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R788	1-218-958-11	METAL GLAZE 2.7K 5% 1/16W	
R789	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R790	1-218-989-11	METAL GLAZE 1M 5% 1/16W	
R791	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R792	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R793	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R794	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R796	1-218-990-11	METAL GLAZE 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
		< RES NETWORK >	
RB751	1-236-428-11	NETWORK, RES 22K	
RB752	1-236-424-11	NETWORK, RES 10K	
RB754	1-236-432-11	NETWORK, RES 47K	
		< CRYSTAL >	
X751	1-579-553-11	VIBRATOR (12MHz)	

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A-7071-735-A MA-164 BOARD, COMPLETE
****
(Ref. No 5,000 Series)

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C951	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C952	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C953	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C954	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C955	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C956	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C958	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C959	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C960	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C961	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C962	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C963	1-135-336-11	TANTAL. CHIP 47uF 20% 6.3V	
C964	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C965	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C966	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C967	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C968	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C969	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C970	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C971	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C972	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
C973	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	
C974	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C975	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C976	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C977	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C978	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C979	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C980	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C981	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C984	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C985	1-164-926-11	CERAMIC CHIP 220PF 5% 16V	
C986	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C987	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C988	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	

Ref. No.	Part No.	Description	Remark
C990	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C991	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V	
C992	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
C993	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C994	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
		< CONNECTOR >	
CN021	1-691-346-11	CONNECTOR, FFC/FPC 8P	
* CN022	1-580-055-21	PIN, CONNECTOR 2P	
* CN023	1-580-055-21	PIN, CONNECTOR 2P	
		< DIODE >	
D981	8-719-404-46	DIODE MA110	
D982	8-719-404-46	DIODE MA110	
		< IC >	
IC981	8-759-084-53	IC CXA1618AN	
IC982	8-759-080-34	IC TA75W01FU	
		< JACK >	
J001	1-691-737-11	JACK, SMALL (MIC PLUG IN POWER)	
J002	1-563-454-11	JACK, MINIATURE (MIC DC OUT)	
J003	1-569-809-11	JACK (SMALL TYPE) (HEADPHONES)	
		< TRANSISTOR >	
Q981	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q985	8-729-015-17	TRANSISTOR 2SC4783-T1L5	
Q986	8-729-015-13	TRANSISTOR 2SA1836-T1M5	
Q990	8-729-010-80	TRANSISTOR FC13	
		< RESISTOR >	
R176	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R177	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R178	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R179	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R180	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R181	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R182	1-218-963-11	METAL GLAZE 6.8K 5% 1/16W	
R183	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R184	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R185	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R186	1-218-966-11	METAL GLAZE 12K 5% 1/16W	
R187	1-218-959-11	METAL GLAZE 3.3K 5% 1/16W	
R188	1-218-971-11	METAL GLAZE 33K 5% 1/16W	
R189	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R190	1-218-964-11	METAL GLAZE 8.2K 5% 1/16W	
R191	1-218-953-11	METAL GLAZE 1K 5% 1/16W	
R192	1-218-968-11	METAL GLAZE 18K 5% 1/16W	
R193	1-216-864-11	METAL CHIP 0 5% 1/16W	
R194	1-216-864-11	METAL CHIP 0 5% 1/16W	
R195	1-216-864-11	METAL CHIP 0 5% 1/16W	

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref.No.	Part No.	Description				Remark
R196	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R197	1-216-792-11	METAL GLAZE	3.9	5%	1/16W	
R198	1-216-296-00	METAL CHIP	0	5%	1/8W	
R199	1-216-296-00	METAL CHIP	0	5%	1/8W	
R200	1-216-296-00	METAL CHIP	0	5%	1/8W	
R890	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R891	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R892	1-216-295-00	METAL CHIP	0	5%	1/10W	
R893	1-216-295-00	METAL CHIP	0	5%	1/10W	
R980	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R981	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R982	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R983	1-216-296-00	METAL CHIP	0	5%	1/8W	
R984	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R985	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R986	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R987	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R988	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R989	1-218-988-11	METAL GLAZE	820K	5%	1/16W	
R990	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R991	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R992	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R993	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R994	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R995	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R996	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W	
R997	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W	
R998	1-218-966-11	METAL GLAZE	12K	5%	1/16W	
R999	1-216-296-00	METAL CHIP	0	5%	1/8W	

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A-7071-740-A RE-22 BOARD, COMPLETE
****
(Ref. No 4,000 Series)

< CAPACITOR >

Ref.No.	Part No.	Description			
C201	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V

< CONNECTOR >

Ref.No.	Part No.	Description
CN211	1-691-484-11	CONNECTOR, FFC/FPC 5P

< DIODE >

Ref.No.	Part No.	Description	
D201	8-719-951-20	LED	BR1102W

< IC >

Ref.No.	Part No.	Description	
IC201	8-749-923-29	IC	RS-20E-T

< RESISTOR >

Ref.No.	Part No.	Description			
R201	1-216-041-00	METAL CHIP	470	5%	1/10W

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A-7071-736-A RE-23 BOARD, COMPLETE
****
(Ref. No 4,000 Series)

< CAPACITOR >

Ref.No.	Part No.	Description			
C251	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V

< CONNECTOR >

Ref.No.	Part No.	Description
CN212	1-691-483-21	CONNECTOR, FFC/FPC 4P

< IC >

Ref.No.	Part No.	Description	
IC251	8-749-923-29	IC	RS-20E-T

< RESISTOR >

Ref.No.	Part No.	Description			
R251	1-216-041-00	METAL CHIP	470	5%	1/10W

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A-7063-403-A VC-129 BOARD, COMPLETE
****
(Ref. No 2,000 Series)

Ref.No.	Part No.	Description
*	3-949-011-01	CASE (A), SHIELD, RP
*	3-949-023-01	CASE (B), SHIELD, RP

< CAPACITOR >

Ref.No.	(Address)	Part No.	Description			Remark
C001	(A•C-5)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C002	(A•B-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C003	(A•B-5)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V
C004	(A•A-5)	1-164-872-11	CERAMIC CHIP	82PF	5%	16V
C005	(A•B-5)	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C006	(A•A-5)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C008	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C010	(B•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C012	(B•C-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C013	(B•C-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C015	(A•B-4)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C016	(B•B-4)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C017	(A•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C018	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C019	(A•B-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C020	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C021	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C022	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C023	(A•C-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C024	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C026	(B•B-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C027	(B•B-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C028	(A•A-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref. No.	Address	Part No.	Description			Remark
C030	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C031	(A•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C032	(A•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C033	(B•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C034	(A•B-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C035	(B•B-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C036	(B•B-4)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C037	(A•B-4)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C039	(A•B-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C041	(A•B-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C042	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C043	(A•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C044	(A•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C045	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C046	(B•C-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C047	(B•C-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C048	(A•A-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C049	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C050	(B•B-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C051	(A•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C052	(B•B-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C053	(A•B-3)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C054	(A•B-3)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C055	(B•B-3)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C060	(B•B-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C061	(B•C-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C062	(B•B-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C063	(B•B-4)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C064	(B•B-4)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C065	(B•B-3)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C066	(B•B-3)	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C071	(B•H-4)	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C072	(B•H-4)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C073	(B•H-4)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C074	(B•H-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C075	(A•H-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C077	(A•G-2)	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
C078	(A•G-3)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C079	(B•G-2)	1-164-462-11	CERAMIC CHIP	110PF	5%	50V
C080	(B•H-2)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C081	(B•G-2)	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C082	(B•H-2)	1-164-930-11	CERAMIC CHIP	330PF	5%	16V
C083	(B•H-2)	1-164-930-11	CERAMIC CHIP	330PF	5%	16V
C084	(A•H-3)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C085	(A•H-3)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C086	(A•G-3)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C087	(A•H-3)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C101	(A•E-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C103	(B•E-1)	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C104	(B•E-1)	1-164-866-11	CERAMIC CHIP	47PF	5%	16V

Ref. No.	Address	Part No.	Description			Remark
C106	(B•D-1)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C107	(B•E-1)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C108	(A•E-1)	1-164-384-11	CERAMIC CHIP	130PF	5%	50V
C109	(A•E-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C110	(A•E-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C111	(B•D-1)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C112	(A•E-2)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C113	(B•D-1)	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C114	(B•D-2)	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C116	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C117	(A•D-2)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C118	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C119	(A•D-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C120	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C121	(A•D-4)	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C123	(A•D-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C124	(B•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C126	(B•D-2)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C127	(A•D-3)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C128	(A•D-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C129	(B•D-1)	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C130	(B•D-2)	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C132	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C134	(A•D-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C137	(A•C-2)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C138	(A•D-3)	1-164-856-11	CERAMIC CHIP	18PF	5%	16V
C140	(A•C-2)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C142	(A•C-3)	1-164-847-11	CERAMIC CHIP	7PF	0.5PF	16V
C144	(A•C-2)	1-164-238-11	CERAMIC CHIP	36PF	5%	50V
C148	(B•D-2)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C149	(B•D-2)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C150	(B•D-2)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C152	(B•D-3)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C153	(B•D-3)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C154	(B•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C155	(B•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C156	(B•D-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C157	(B•D-3)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C158	(B•D-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C159	(B•D-4)	1-164-862-11	CERAMIC CHIP	33PF	5%	16V
C160	(B•D-4)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C161	(A•C-2)	1-164-870-11	CERAMIC CHIP	68PF	5%	16V
C162	(B•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C163	(A•D-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C164	(B•C-1)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C165	(B•C-2)	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C166	(A•C-1)	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C167	(A•C-1)	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C168	(B•C-2)	1-164-928-11	CERAMIC CHIP	270PF	5%	16V
C169	(B•D-3)	1-164-860-11	CERAMIC CHIP	27PF	5%	16V

Ref.No.	Address	Part No.	Description			Remark
C170	(B•C-2)	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C171	(B•C-3)	1-162-976-11	CERAMIC CHIP	75PF	5%	50V
C172	(B•D-3)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C173	(B•D-3)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C175	(B•C-1)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C176	(A•C-3)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C177	(A•C-4)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C201	(B•B-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C202	(A•A-9)	1-164-856-11	CERAMIC CHIP	18PF	5%	16V
C203	(A•A-9)	1-164-854-11	CERAMIC CHIP	15PF	5%	16V
C204	(B•B-7)	1-164-346-11	CERAMIC CHIP	1uF		16V
C205	(A•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C206	(B•A-8)	1-164-346-11	CERAMIC CHIP	1uF		16V
C208	(B•A-9)	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C209	(B•A-9)	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C211	(B•A-7)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C212	(B•A-7)	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C213	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C215	(A•A-6)	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C216	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C217	(B•B-6)	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C218	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C219	(B•A-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C220	(A•A-6)	1-164-346-11	CERAMIC CHIP	1uF		16V
C221	(B•A-6)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C222	(B•B-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C223	(B•A-6)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C224	(A•B-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C225	(B•A-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C226	(B•A-6)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C227	(B•A-6)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C228	(A•A-6)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C229	(B•A-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C230	(B•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C231	(B•A-5)	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C232	(B•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C233	(A•A-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C234	(A•A-6)	1-164-346-11	CERAMIC CHIP	1uF		16V
C235	(B•B-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C236	(B•A-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C238	(A•A-12)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C239	(A•A-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C240	(A•A-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C241	(A•A-11)	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C242	(A•A-11)	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C243	(B•B-11)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C244	(A•B-11)	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C245	(A•A-11)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C246	(A•A-12)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C247	(A•A-12)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V

Ref.No.	Address	Part No.	Description			Remark
C248	(A•A-12)	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C249	(A•A-12)	1-164-346-11	CERAMIC CHIP	1uF		16V
C250	(A•A-12)	1-164-346-11	CERAMIC CHIP	1uF		16V
C251	(A•A-12)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C252	(A•A-10)	1-164-346-11	CERAMIC CHIP	1uF		16V
C253	(B•A-10)	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C254	(A•B-10)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C255	(A•A-10)	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C256	(A•A-10)	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C257	(A•A-10)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C258	(B•B-9)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C259	(B•B-9)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C260	(A•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C261	(B•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C262	(A•A-10)	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C263	(A•A-10)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C264	(A•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C265	(A•A-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C266	(A•A-10)	1-164-346-11	CERAMIC CHIP	1uF		16V
C267	(A•B-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C268	(A•B-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C269	(A•B-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C270	(A•A-7)	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C271	(A•A-8)	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C272	(A•B-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C273	(A•B-7)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C274	(A•A-6)	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C275	(A•A-9)	1-164-842-11	CERAMIC CHIP	2PF	0.25PF	16V
C276	(A•A-7)	1-164-931-11	CERAMIC CHIP	100PF	10%	16V
C278	(A•A-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C279	(A•A-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C280	(A•A-8)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C281	(B•B-9)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C282	(B•A-8)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C283	(B•A-8)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C302	(B•D-12)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C304	(B•C-12)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C307	(B•C-10)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C308	(B•C-11)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C309	(A•C-5)	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C311	(B•B-11)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C312	(B•B-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C313	(B•C-11)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C314	(B•B-12)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C315	(A•B-12)	1-135-338-11	TANTAL. CHIP	220uF	20%	4V
C316	(B•B-12)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C317	(B•B-12)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C318	(B•C-12)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C320	(A•B-11)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C322	(B•B-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref.No.	Address	Part No.	Description			Remark
C323	(B•B-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C328	(A•C-11)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C329	(A•B-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C330	(A•B-10)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C401	(B•G-4)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C402	(B•G-4)	1-164-894-11	CERAMIC CHIP	10PF	0.5PF	16V
C403	(B•G-3)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C405	(A•F-3)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C406	(A•G-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C408	(A•G-3)	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C410	(A•F-2)	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C411	(A•F-5)	1-135-072-21	TANTALUM CHIP	0.22uF	10%	35V
C412	(A•F-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C413	(B•F-4)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C414	(A•G-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C415	(A•G-3)	1-135-338-11	TANTAL. CHIP	220uF	20%	4V
C416	(A•G-2)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C418	(A•G-3)	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C420	(A•F-5)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C422	(B•F-3)	1-164-924-11	CERAMIC CHIP	180PF	5%	16V
C423	(B•F-2)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C424	(B•F-2)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C427	(B•F-2)	1-164-926-11	CERAMIC CHIP	220PF	5%	16V
C428	(B•F-2)	1-164-930-11	CERAMIC CHIP	330PF	5%	16V
C429	(B•F-3)	1-164-928-11	CERAMIC CHIP	270PF	5%	16V
C431	(A•F-2)	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C432	(B•F-2)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C433	(B•E-2)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C435	(B•E-2)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V
C436	(A•E-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C437	(A•F-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C438	(B•F-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C439	(B•E-3)	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C440	(A•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C441	(B•F-4)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C442	(B•E-3)	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C443	(B•F-4)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C444	(B•E-3)	1-164-916-11	CERAMIC CHIP	82PF	5%	16V
C445	(B•F-4)	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C447	(A•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C448	(B•E-4)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C449	(B•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C451	(B•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C452	(B•E-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C453	(A•E-4)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C454	(B•F-4)	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C455	(B•F-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C456	(B•E-4)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C457	(B•E-4)	1-164-896-11	CERAMIC CHIP	12PF	5%	16V
C459	(B•E-2)	1-164-904-11	CERAMIC CHIP	27PF	5%	16V

Ref.No.	Address	Part No.	Description			Remark
C460	(A•D-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C462	(B•D-4)	1-164-924-11	CERAMIC CHIP	180PF	5%	16V
C463	(A•E-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C464	(B•E-3)	1-164-912-11	CERAMIC CHIP	56PF	5%	16V
C465	(B•E-4)	1-164-904-11	CERAMIC CHIP	27PF	5%	16V
C466	(A•D-3)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C467	(A•E-5)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C469	(B•E-3)	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C472	(A•E-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C474	(B•D-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C475	(A•D-6)	1-164-912-11	CERAMIC CHIP	56PF	5%	16V
C476	(A•E-6)	1-164-914-11	CERAMIC CHIP	68PF	5%	16V
C477	(B•D-6)	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C478	(A•E-6)	1-164-926-11	CERAMIC CHIP	220PF	5%	16V
C479	(A•D-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C480	(A•D-6)	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C481	(A•D-6)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V
C482	(A•D-6)	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C483	(A•D-6)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C484	(A•D-6)	1-164-916-11	CERAMIC CHIP	82PF	5%	16V
C486	(B•E-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C487	(B•D-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C488	(B•D-5)	1-135-247-11	TANTAL. CHIP	47uF	20%	6.3V
C490	(B•E-5)	1-135-247-11	TANTAL. CHIP	47uF	20%	6.3V
C491	(A•D-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C494	(B•E-7)	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C495	(A•E-7)	1-164-847-11	CERAMIC CHIP	7PF	0.5PF	16V
C496	(B•E-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C497	(B•E-5)	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C498	(A•E-6)	1-164-894-11	CERAMIC CHIP	10PF	0.5PF	16V
C499	(A•F-6)	1-164-902-11	CERAMIC CHIP	22PF	5%	16V
C501	(B•F-5)	1-164-948-11	CERAMIC CHIP	0.022uF		16V
C502	(B•E-5)	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C503	(B•F-5)	1-135-226-21	TANTAL. CHIP	0.68uF	20%	16V
C504	(B•E-6)	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C505	(A•E-3)	1-164-914-11	CERAMIC CHIP	68PF	5%	16V
C506	(B•D-4)	1-164-902-11	CERAMIC CHIP	22PF	5%	16V
C507	(B•D-7)	1-164-900-11	CERAMIC CHIP	18PF	5%	16V
C508	(A•E-2)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C551	(B•C-7)	1-164-346-11	CERAMIC CHIP	1uF		16V
C553	(B•C-7)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C554	(B•C-7)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C555	(B•C-8)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C556	(B•C-8)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C557	(B•C-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C558	(B•D-8)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C559	(B•C-8)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C561	(B•C-7)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C562	(B•C-7)	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C563	(A•C-6)	1-164-918-11	CERAMIC CHIP	100PF	5%	16V

Ref.No.	Address	Part No.	Description			Remark
C564	(A•C-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C565	(B•C-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C567	(B•C-5)	1-164-346-11	CERAMIC CHIP	1uF		16V
C568	(B•C-6)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C569	(B•C-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C570	(B•C-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C571	(B•C-6)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C572	(B•C-6)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C573	(B•D-6)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C574	(B•C-6)	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C576	(B•C-5)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C577	(B•D-5)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C578	(B•C-6)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C579	(B•C-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C580	(A•D-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C581	(A•D-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C582	(A•D-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C583	(B•E-2)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C584	(B•F-2)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C586	(A•F-4)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C590	(A•C-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C601	(B•G-8)	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C602	(A•H-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C603	(B•G-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C604	(B•F-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C605	(A•G-8)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C608	(B•F-8)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C609	(B•G-9)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C610	(B•F-9)	1-164-906-11	CERAMIC CHIP	33PF	5%	16V
C613	(B•F-9)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C614	(A•G-10)	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C615	(A•H-10)	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C617	(B•G-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C618	(B•G-9)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C619	(B•E-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C620	(B•E-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C621	(B•E-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C622	(B•G-9)	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C623	(B•G-9)	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C624	(B•F-9)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C625	(B•F-9)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C626	(B•E-9)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C627	(B•G-9)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C628	(B•F-10)	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C629	(B•G-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C630	(B•E-10)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C631	(B•E-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C651	(A•F-10)	1-164-908-11	CERAMIC CHIP	39PF	5%	16V
C652	(B•F-12)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C654	(B•G-11)	1-164-947-11	CERAMIC CHIP	0.01uF		16V

Ref.No.	Address	Part No.	Description			Remark
C655	(B•G-11)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C656	(B•E-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C657	(B•E-10)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C660	(B•E-10)	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C664	(B•E-11)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C665	(B•G-10)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C666	(B•G-10)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C667	(A•H-10)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C668	(A•H-11)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C669	(A•H-11)	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C670	(A•H-11)	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C671	(A•H-12)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C673	(A•F-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C674	(B•E-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C675	(A•F-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C678	(A•E-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C679	(A•F-11)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C680	(A•G-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C681	(B•E-11)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C682	(B•G-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C683	(B•H-10)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C684	(B•E-11)	1-164-896-11	CERAMIC CHIP	12PF	5%	16V
C685	(B•E-12)	1-164-947-11	CERAMIC CHIP	0.01uF		16V
C686	(A•F-12)	1-164-904-11	CERAMIC CHIP	27PF	5%	16V
C901	(B•H-5)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C902	(A•E-7)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C903	(A•E-7)	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C904	(A•E-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C906	(B•F-7)	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C907	(A•G-5)	1-164-856-11	CERAMIC CHIP	18PF	5%	16V
C908	(A•G-5)	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C909	(A•F-6)	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C910	(B•F-5)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C911	(A•G-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C912	(A•F-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C913	(B•G-6)	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C914	(B•G-5)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C920	(B•C-7)	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C921	(B•C-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C922	(B•G-7)	1-135-156-21	TANTALUM CHIP	6.8uF	10%	10V
C923	(B•G-7)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C924	(B•G-6)	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C925	(B•G-7)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C927	(B•G-6)	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C928	(A•B-7)	1-164-862-11	CERAMIC CHIP	33PF	5%	16V

< CONNECTOR >

Ref.No.	Address	Part No.	Description			Remark
CN001	(A•A-4)	1-573-355-11	CONNECTOR, FFC/FPC 15P			
CN002	(A•D-1)	1-573-371-21	CONNECTOR, BOARD TO BOARD 14P			
CN201	(A•A-12)	1-573-924-11	CONNECTOR, FFC/FPC (ZIF) 15P			

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref. No.	Address	Part No.	Description	Remark
CN202	(A•A-7)	1-573-915-11	CONNECTOR, FFC/FPC (ZIF) 6P	
CN203	(A•A-6)	1-573-293-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
CN204	(A•D-9)	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P	
CN206	(A•A-8)	1-573-921-11	CONNECTOR, FFC/FPC (ZIF) 12P	
CN207	(A•A-10)	1-573-927-11	CONNECTOR, FFC/FPC (ZIF) 18P	
CN303	(A•D-12)	1-691-486-11	CONNECTOR, FFC/FPC 7P	
CN304	(A•B-5)	1-691-518-11	CONNECTOR, BOARD TO BOARD 28P	
CN305	(A•C-12)	1-691-388-11	CONNECTOR, FFC/FPC (ZIF) 24P	
CN601	(A•G-8)	1-695-409-11	CONNECTOR, BOARD TO BOARD 16P	
CN651	(B•E-12)	1-573-372-21	CONNECTOR, BOARD TO BOARD 18P	
CN652	(A•E-8)	1-691-519-11	CONNECTOR, BOARD TO BOARD 30P	
CN911	(A•H-5)	1-691-388-11	CONNECTOR, FFC/FPC (ZIF) 24P	
CN912	(A•H-7)	1-691-388-11	CONNECTOR, FFC/FPC (ZIF) 24P	

< TRIMMER >

Ref. No.	Address	Part No.	Description	Remark
CT601	(A•H-8)	1-141-430-51	CAP, CHIP TRIMMER (6PF)	
CT901	(A•C-7)	1-141-368-11	CAP, CHIP TRIMMER (10PF)	

< DIODE >

Ref. No.	Address	Part No.	Description	Remark
D071	(B•H-4)	8-719-404-46	DIODE MA110	
D101	(B•D-3)	8-719-820-41	DIODE 1SS302	
D102	(A•D-3)	8-719-404-46	DIODE MA110	
D301	(B•B-11)	8-719-421-67	DIODE MA132WK	
D303	(A•B-12	8-719-025-86	DIODE RD8.2UMB2B3	
D304	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D305	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D306	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D307	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D308	(B•B-10)	8-719-404-46	DIODE MA110	
D309	(B•D-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D310	(B•C-12)	8-719-025-86	DIODE RD8.2UMB2B3	
D401	(B•G-5)	8-719-404-46	DIODE MA110	
D402	(B•F-5)	8-719-025-84	DIODE MA1S121	
D403	(B•D-4)	8-719-421-71	DIODE MA132WA	
D404	(A•E-2)	8-719-421-71	DIODE MA132WA	
D405	(A•E-3)	8-719-404-46	DIODE MA110	
D551	(B•B-7)	8-719-421-67	DIODE MA132WK	
D554	(B•G-4)	8-719-421-67	DIODE MA132WK	
⚠D901	(B•G-6)	8-719-421-27	DIODE MA728	
D902	(A•F-7)	8-719-421-67	DIODE MA132WK	
D903	(B•F-6)	8-719-025-86	DIODE RD8.2UMB2B3	

< FILTER >

Ref. No.	Address	Part No.	Description	Remark
FL071	(A•H-3)	1-239-386-21	FILTER, BAND PASS (PAL.JOG)	
FL401	(A•G-2)	1-236-775-11	FILTER, LOW PASS (DEM)	
FL402	(A•E-2)	1-239-112-21	FILTER, LOW PASS (Y)	
FL403	(A•D-8)	1-239-110-11	FILTER, BAND PASS	
FL404	(B•D-6)	1-579-668-11	FILTER, CERAMIC	
FL405	(A•D-8)	1-239-349-21	FILTER, BAND PASS (CE.PAL)	
FL551	(A•C-7)	1-236-848-21	FILTER, LOW PASS	
FL552	(A•C-6)	1-239-010-11	FILTER, LOW PASS (CCD.PAL.Y)	
FL651	(A•F-12)	1-239-352-11	FILTER, LOW PASS	

< IC >

Ref. No.	Address	Part No.	Description	Remark
IC001	(A•C-3)	8-759-080-22	IC CXA1555BR-E2	
IC071	(B•H-3)	8-752-060-94	IC CXA1203N	
IC101	(A•D-2)	8-752-058-02	IC CXA1509AR	
IC201	(B•A-8)	8-752-840-44	IC CXP80620A-012R	
IC202	(B•A-6)	8-759-059-42	IC CXA1481AR	
IC203	(B•A-11)	8-759-823-90	IC LB8110M	
IC204	(B•A-12)	8-759-057-74	IC MCD002AR	
IC205	(B•A-10)	8-759-057-77	IC MCD004BN	
IC206	(A•A-8)	8-759-062-02	IC MPC1720VM	
IC302	(B•B-11)	8-759-038-83	IC MC13400FU	
IC303	(A•B-6)	8-759-069-23	IC MB88344PFV	
IC306	(A•B-11)	8-759-061-70	IC MB86168PFV	
IC401	(A•F-4)	8-752-065-54	IC CXA1207AR	
IC402	(A•E-5)	8-752-053-21	IC CXA1211M	
IC403	(A•D-5)	8-759-636-33	IC CXA1452N	
IC404	(B•E-7)	8-752-065-56	IC CXA1208R	
IC405	(A•D-6)	8-752-053-21	IC CXA1211M	
IC406	(A•D-4)	8-759-070-51	IC SN74HCU04ADB	
IC551	(B•C-7)	8-752-351-95	IC CXL1506N	
IC552	(B•C-6)	8-752-351-95	IC CXL1506N	
IC601	(B•G-8)	8-752-354-07	IC CXD1250AN-T4	
IC602	(A•G-9)	8-752-341-09	IC CXD1265R-T6	
IC603	(B•F-9)	8-752-053-26	IC CXA1399Q	
IC604	(B•E-9)	8-752-056-39	IC CXA1507BR	
IC651	(B•G-11)	8-759-044-78	IC AK6420F	
IC653	(B•F-11)	8-759-097-72	IC SC406805FUMC68HC11M2	
IC654	(A•F-9)	8-759-064-36	IC MB88346BPFV	
IC656	(A•E-9)	8-759-074-92	IC CXD2133R	
IC659	(A•E-11)	8-752-350-13	IC CXD2130R	
IC660	(A•G-11)	8-752-348-92	IC CXD2101AR	
IC661	(B•G-10)	8-759-031-58	IC SC7SU04F	
IC901	(B•G-6)	8-759-044-78	IC AK6420F	
⚠IC902	(B•G-6)	8-759-099-91	IC S-8420JF-T2	
IC903	(A•G-6)	8-759-157-98	IC MB89092PFV-G-112A	
IC904	(B•G-7)	8-759-059-05	IC TL1596CPW	
IC905	(A•C-8)	8-759-073-98	IC uPD6453GT-621	

< COIL >

Ref. No.	Address	Part No.	Description	Remark
L001	(A•B-5)	1-412-033-11	INDUCTOR CHIP 220uH	
L002	(A•A-5)	1-412-951-11	INDUCTOR 10uH	
L004	(B•C-4)	1-414-119-11	INDUCTOR 22uH	
L005	(B•A-4)	1-412-032-11	INDUCTOR CHIP 100uH	
L007	(B•A-3)	1-412-032-11	INDUCTOR CHIP 100uH	
L008	(B•B-3)	1-414-119-11	INDUCTOR 22uH	
L071	(A•G-2)	1-412-951-11	INDUCTOR 10uH	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Address	Part No.	Description	Remark
L103	(A•E-1)	1-412-961-11	INDUCTOR 68uH	
L104	(B•F-1)	1-412-947-11	INDUCTOR 4.7uH	
L105	(B•D-2)	1-412-954-11	INDUCTOR 18uH	
L106	(B•E-2)	1-412-945-11	INDUCTOR 3.3uH	
L109	(B•D-2)	1-410-657-21	INDUCTOR CHIP 180uH	
L110	(B•D-1)	1-412-954-11	INDUCTOR 18uH	
L111	(A•D-3)	1-412-029-11	INDUCTOR CHIP 10uH	
L112	(A•C-3)	1-412-954-11	INDUCTOR 18uH	
L113	(B•D-3)	1-412-957-11	INDUCTOR 33uH	
L114	(B•D-4)	1-412-951-11	INDUCTOR 10uH	
L120	(B•C-2)	1-412-957-11	INDUCTOR 33uH	
L121	(A•C-2)	1-412-279-31	INDUCTOR 270uH	
L122	(A•C-2)	1-412-282-41	INDUCTOR 470uH	
L123	(A•C-1)	1-410-657-21	INDUCTOR CHIP 180uH	
L124	(B•D-2)	1-412-958-21	INDUCTOR 39uH	
L125	(B•C-3)	1-412-949-21	INDUCTOR 6.8uH	
L126	(A•D-4)	1-410-655-31	INDUCTOR CHIP 120uH	
L172	(B•D-3)	1-412-952-11	INDUCTOR 12uH	
L173	(B•C-1)	1-412-029-11	INDUCTOR CHIP 10uH	
L175	(A•D-4)	1-412-947-11	INDUCTOR 4.7uH	
L201	(A•A-5)	1-412-062-11	INDUCTOR CHIP 47uH	
L203	(A•A-5)	1-412-064-11	INDUCTOR CHIP 100uH	
L303	(B•B-6)	1-412-959-11	INDUCTOR 47uH	
L305	(B•D-12)	1-414-117-11	INDUCTOR 1uH	
L306	(B•C-12)	1-414-117-11	INDUCTOR 1uH	
L401	(B•G-4)	1-412-963-11	INDUCTOR 100uH	
L402	(B•C-8)	1-412-951-11	INDUCTOR 10uH	
L404	(A•G-4)	1-412-951-11	INDUCTOR 10uH	
L405	(B•F-3)	1-412-956-21	INDUCTOR 27uH	
L406	(B•F-3)	1-412-946-11	INDUCTOR 3.9uH	
L407	(B•E-3)	1-412-956-21	INDUCTOR 27uH	
L408	(B•E-4)	1-412-953-11	INDUCTOR 15uH	
L411	(B•E-4)	1-412-947-11	INDUCTOR 4.7uH	
L413	(A•E-6)	1-410-393-11	INDUCTOR CHIP 100uH	
L414	(A•E-2)	1-412-960-21	INDUCTOR 56uH	
L415	(A•E-6)	1-410-655-31	INDUCTOR CHIP 120uH	
L416	(A•D-6)	1-412-963-11	INDUCTOR 100uH	
L417	(A•D-6)	1-410-656-11	INDUCTOR CHIP 150uH	
L418	(B•E-7)	1-412-963-11	INDUCTOR 100uH	
L420	(A•E-6)	1-412-956-21	INDUCTOR 27uH	
L421	(A•E-3)	1-412-952-11	INDUCTOR 12uH	
L422	(B•E-4)	1-412-960-21	INDUCTOR 56uH	
L601	(B•F-8)	1-412-991-11	INDUCTOR 10uH	
L602	(B•G-9)	1-412-029-11	INDUCTOR CHIP 10uH	
L603	(B•F-8)	1-412-029-11	INDUCTOR CHIP 10uH	
L604	(B•E-9)	1-412-029-11	INDUCTOR CHIP 10uH	
L651	(B•F-12)	1-412-991-11	INDUCTOR 10uH	
L653	(B•G-11)	1-414-078-11	INDUCTOR 10uH	
L655	(B•E-11)	1-414-078-11	INDUCTOR 10uH	
L656	(B•E-11)	1-414-078-11	INDUCTOR 10uH	
L659	(B•G-11)	1-412-006-31	INDUCTOR CHIP 10uH	
L661	(B•E-12)	1-412-963-11	INDUCTOR 100uH	
L663	(A•C-10)	1-414-117-11	INDUCTOR 1uH	
L664	(B•C-9)	1-412-979-21	INDUCTOR 1uH	
L665	(B•D-9)	1-412-979-21	INDUCTOR 1uH	
L666	(A•D-10)	1-414-117-11	INDUCTOR 1uH	
L667	(A•C-10)	1-414-117-11	INDUCTOR 1uH	
L901	(A•F-7)	1-414-120-11	INDUCTOR 47uH	
L902	(A•B-7)	1-412-959-11	INDUCTOR 47uH	
L903	(B•C-7)	1-414-120-11	INDUCTOR 47uH	
L904	(A•G-4)	1-412-979-21	INDUCTOR 1uH	

< IC LINK >

Ref. No.	Address	Part No.	Description	Remark
⚠PS201	(A•B-7)	1-576-123-21	LINK, IC	
⚠PS901	(B•F-7)	1-576-123-21	LINK, IC	

< TRANSISTOR >

Ref. No.	Address	Part No.	Description	Remark
Q001	(A•B-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q002	(B•B-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q003	(B•B-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q005	(B•A-4)	8-729-015-66	TRANSISTOR 2SC4919	
Q006	(B•A-4)	8-729-015-66	TRANSISTOR 2SC4919	
Q007	(B•A-3)	8-729-015-66	TRANSISTOR 2SC4919	
Q008	(B•A-3)	8-729-015-66	TRANSISTOR 2SC4919	
Q010	(B•B-4)	8-729-428-88	TRANSISTOR UN9113	
Q011	(B•B-4)	8-729-428-88	TRANSISTOR UN9113	
Q012	(B•B-3)	8-729-428-88	TRANSISTOR UN9113	
Q013	(B•B-3)	8-729-428-88	TRANSISTOR UN9113	
Q071	(B•G-4)	8-729-428-88	TRANSISTOR UN9113	
Q072	(B•H-2)	8-729-429-18	TRANSISTOR UN9213	
Q073	(A•H-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q074	(A•G-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q075	(A•G-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q076	(A•G-4)	8-729-429-18	TRANSISTOR UN9213	
Q101	(B•E-1)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q102	(B•E-1)	8-729-429-18	TRANSISTOR UN9213	
Q104	(B•D-3)	8-729-429-18	TRANSISTOR UN9213	
Q105	(B•D-2)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q106	(B•D-3)	8-729-428-88	TRANSISTOR UN9113	
Q107	(B•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q108	(B•D-4)	8-729-427-46	TRANSISTOR XP4213	
Q109	(B•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q110	(A•C-2)	8-729-429-18	TRANSISTOR UN9213	
Q111	(B•C-4)	8-729-429-18	TRANSISTOR UN9213	
Q115	(B•C-2)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q116	(B•D-2)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q117	(B•D-2)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q118	(B•C-2)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q119	(B•C-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q120	(B•C-4)	8-729-429-18	TRANSISTOR UN9213	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref.No.	Address	Part No.	Description	Remark
Q121	(B•D-4)	8-729-429-18	TRANSISTOR UN9213	
Q122	(B•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q123	(A•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q124	(B•C-4)	8-729-429-18	TRANSISTOR UN9213	
Q201	(A•B-12)	8-729-429-14	TRANSISTOR UN9211	
Q202	(A•A-7)	8-729-017-61	TRANSISTOR 2SB15811	
Q203	(B•C-9)	8-729-427-16	TRANSISTOR XP4113	
Q204	(B•D-9)	8-729-427-46	TRANSISTOR XP4213	
Q205	(B•C-9)	8-729-429-32	TRANSISTOR UN9210-QRS	
Q303	(B•C-12)	8-729-429-18	TRANSISTOR UN9213	
Q304	(B•C-12)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q305	(B•C-12)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q306	(B•C-11)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q307	(B•B-10)	8-729-429-18	TRANSISTOR UN9213	
Q401	(B•F-4)	8-729-429-18	TRANSISTOR UN9213	
Q402	(B•G-4)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q403	(B•G-3)	8-729-824-05	TRANSISTOR 3SK248	
Q404	(B•F-4)	8-729-429-18	TRANSISTOR UN9213	
Q405	(B•G-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q406	(A•F-2)	8-729-429-18	TRANSISTOR UN9213	
Q408	(B•G-5)	8-729-427-46	TRANSISTOR XP4213	
Q409	(B•G-2)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q410	(B•G-5)	8-729-429-50	TRANSISTOR XP4312	
Q411	(B•F-2)	8-729-427-72	TRANSISTOR XP4501	
Q412	(B•F-4)	8-729-428-88	TRANSISTOR UN9113	
Q413	(B•F-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q414	(B•F-2)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q415	(B•E-2)	8-729-428-88	TRANSISTOR UN9113	
Q417	(B•F-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q418	(B•E-2)	8-729-428-84	TRANSISTOR UN9111	
Q419	(B•E-3)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q420	(A•D-7)	8-729-429-18	TRANSISTOR UN9213	
Q421	(B•E-3)	8-729-425-85	TRANSISTOR XP1113	
Q425	(B•D-5)	8-729-428-88	TRANSISTOR UN9113	
Q426	(B•F-5)	8-729-429-06	TRANSISTOR UN911E	
Q427	(B•E-3)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q428	(B•E-4)	8-729-015-70	TRANSISTOR 2SA1865	
Q429	(A•F-1)	8-729-429-18	TRANSISTOR UN9213	
Q431	(A•D-4)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q435	(A•E-3)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q437	(B•D-7)	8-729-429-18	TRANSISTOR UN9213	
Q438	(A•C-7)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q439	(A•D-6)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q440	(A•D-7)	8-729-429-18	TRANSISTOR UN9213	
Q441	(B•D-7)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q442	(A•E-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q443	(B•E-6)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q444	(B•E-7)	8-729-429-18	TRANSISTOR UN9213	
Q445	(B•E-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q446	(A•E-7)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q447	(A•E-6)	8-729-428-88	TRANSISTOR UN9113	
Q448	(A•E-2)	8-729-429-18	TRANSISTOR UN9213	
Q449	(A•E-3)	8-729-429-18	TRANSISTOR UN9213	
Q450	(A•E-2)	8-729-429-18	TRANSISTOR UN9213	
Q451	(B•D-4)	8-729-429-18	TRANSISTOR UN9213	
Q552	(B•F-5)	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q553	(B•C-7)	8-729-429-18	TRANSISTOR UN9213	
Q554	(B•C-8)	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q555	(B•C-7)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q556	(A•C-7)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q557	(A•C-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q558	(B•C-5)	8-729-429-18	TRANSISTOR UN9213	
Q559	(B•C-5)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q560	(B•C-6)	8-729-425-64	TRANSISTOR 2SD2216-Q	
Q561	(A•D-7)	8-729-425-73	TRANSISTOR 2SC4627-C	
Q562	(B•F-4)	8-729-015-68	TRANSISTOR 2SC4922	
Q563	(B•F-4)	8-729-015-68	TRANSISTOR 2SC4922	
Q566	(A•C-6)	8-729-429-18	TRANSISTOR UN9213	
Q601	(A•G-8)	8-729-427-70	TRANSISTOR XP4401	
Q603	(B•G-9)	8-729-427-74	TRANSISTOR XP4601	
Q656	(B•E-11)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q657	(A•F-12)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q658	(A•E-12)	8-729-425-50	TRANSISTOR 2SB1462-Q	
Q659	(B•E-12)	8-729-425-64	TRANSISTOR 2SD2216-Q	

< RESISTOR >

Ref.No.	Address	Part No.	Description				Remark
R001	(A•B-5)	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R002	(A•B-5)	1-218-971-11	METAL GLAZE	33K	5%	1/16W	
R003	(B•B-5)	1-218-946-11	METAL GLAZE	270	5%	1/16W	
R004	(B•B-5)	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R005	(B•B-5)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R006	(B•C-5)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R007	(B•B-5)	1-218-937-11	METAL GLAZE	47	5%	1/16W	
R008	(B•B-5)	1-218-937-11	METAL GLAZE	47	5%	1/16W	
R009	(B•A-5)	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R011	(A•B-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R012	(B•B-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R013	(A•B-4)	1-218-939-11	METAL GLAZE	68	5%	1/16W	
R015	(B•A-4)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R018	(B•A-4)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R019	(A•A-4)	1-218-939-11	METAL GLAZE	68	5%	1/16W	
R020	(A•A-3)	1-218-939-11	METAL GLAZE	68	5%	1/16W	
R021	(B•A-3)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R024	(B•A-3)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W	
R025	(A•B-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R026	(B•B-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W	
R027	(A•B-3)	1-218-939-11	METAL GLAZE	68	5%	1/16W	
R028	(B•B-4)	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R029	(A•C-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W	
R030	(A•C-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W	

Ref.No.	Address	Part No.	Description			Remark
R033	(A•B-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R034	(A•B-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R035	(A•B-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R036	(A•B-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R037	(B•B-4)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R039	(A•C-3)	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R040	(A•C-3)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R043	(B•B-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R044	(B•B-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R045	(B•B-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R046	(B•B-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R047	(B•B-3)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R051	(A•C-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R052	(A•C-4)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R055	(A•C-3)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R071	(B•H-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R072	(B•H-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R073	(B•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R074	(B•H-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R075	(B•H-4)	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R076	(B•H-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R077	(A•H-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R078	(B•G-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R079	(B•H-2)	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R080	(B•H-2)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R081	(A•H-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R082	(B•H-2)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R083	(A•H-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R084	(A•H-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R085	(A•H-3)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R086	(A•H-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R087	(A•H-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R088	(A•G-3)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R089	(A•G-4)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R090	(A•G-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R101	(B•E-2)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R102	(A•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R104	(B•D-1)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R105	(A•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R106	(B•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R108	(B•E-1)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R109	(B•E-1)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R110	(A•D-1)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R111	(B•E-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R112	(B•D-2)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R113	(B•C-4)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R115	(B•D-1)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R116	(B•D-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R117	(A•D-2)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R118	(B•D-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R120	(B•D-2)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R121	(A•D-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R122	(B•C-4)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R123	(A•C-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R124	(B•C-4)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R126	(A•C-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R128	(B•D-2)	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R129	(B•D-2)	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R130	(B•D-3)	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R131	(B•D-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R132	(B•D-3)	1-218-940-11	METAL GLAZE	82	5%	1/16W
R133	(B•D-3)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R134	(B•D-3)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R135	(B•D-3)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R136	(B•D-3)	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R137	(B•D-3)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R138	(B•D-3)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R139	(B•D-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R140	(B•D-4)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R141	(B•D-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R143	(A•E-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R144	(A•E-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R145	(A•D-3)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R155	(B•D-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R156	(B•C-2)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R157	(B•C-2)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R158	(B•C-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R159	(B•C-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R160	(B•C-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R161	(B•C-2)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R162	(B•D-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R163	(B•C-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R164	(B•C-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R165	(B•D-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R166	(B•D-3)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R167	(B•C-3)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R168	(B•D-3)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R169	(B•C-3)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R170	(B•C-4)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R171	(B•D-4)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R172	(B•C-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R173	(B•C-4)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R174	(A•D-3)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R175	(A•D-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R201	(A•B-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R202	(A•B-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R203	(A•B-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R204	(A•B-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R205	(A•B-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R206	(B•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref.No.	Address	Part No.	Description			Remark
R207	(A•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R208	(A•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R209	(A•B-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R210	(A•B-8)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R211	(A•B-8)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R213	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R214	(B•B-9)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R215	(B•A-7)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R216	(B•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R217	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R218	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R219	(B•A-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R224	(B•A-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R225	(A•B-6)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R226	(B•B-6)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R227	(B•B-6)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R228	(B•B-6)	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R229	(B•B-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R230	(B•B-6)	1-218-988-11	METAL GLAZE	820K	5%	1/16W
R231	(B•B-6)	1-218-988-11	METAL GLAZE	820K	5%	1/16W
R232	(B•A-6)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R233	(B•A-6)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R234	(B•A-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R235	(B•A-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R236	(B•A-5)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R237	(B•A-5)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R238	(B•A-6)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R239	(A•A-12)	1-216-019-00	METAL CHIP	56	5%	1/10W
R240	(B•A-6)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R241	(A•A-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R242	(A•A-11)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R243	(A•A-11)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R244	(A•A-11)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R245	(A•A-11)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R246	(A•A-11)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R247	(A•A-11)	1-218-984-11	METAL GLAZE	390K	5%	1/16W
R248	(A•A-11)	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R249	(A•A-11)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R250	(A•A-11)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R251	(A•A-12)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R253	(B•A-11)	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R254	(A•A-12)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R255	(A•A-12)	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R256	(A•A-12)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R257	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R258	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R259	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R260	(B•A-10)	1-217-671-11	METAL CHIP	1	5%	1/10W
R261	(A•B-10)	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R262	(B•A-10)	1-218-941-11	METAL GLAZE	100	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R263	(B•A-10)	1-218-883-11	METAL CHIP	33K	0.50%	1/16W
R264	(A•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R265	(A•A-10)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R266	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R267	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R268	(A•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R269	(A•A-10)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R270	(A•A-9)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R271	(A•A-10)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R272	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R273	(B•A-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R274	(B•A-9)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R276	(A•B-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R277	(A•B-8)	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R278	(A•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R279	(A•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R280	(A•A-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R283	(B•A-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R284	(B•A-7)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R285	(A•A-6)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R286	(A•B-11)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R287	(B•A-7)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R289	(B•A-9)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R290	(A•A-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R299	(A•A-6)	1-216-296-00	METAL CHIP	0	5%	1/8W
R302	(B•C-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R303	(B•C-12)	1-218-975-11	METAL GLAZE	68K	5%	1/16W
R304	(B•B-9)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R305	(B•C-12)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R306	(B•C-12)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R307	(B•C-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R308	(B•C-12)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R309	(B•C-12)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R310	(B•C-12)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R311	(A•C-12)	1-216-864-11	METAL CHIP	0	5%	1/16W
R312	(B•B-10)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R313	(A•C-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R314	(B•C-10)	1-216-296-00	METAL CHIP	0	5%	1/8W
R315	(A•B-12)	1-216-296-00	METAL CHIP	0	5%	1/8W
R318	(B•B-11)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R319	(B•B-11)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R323	(B•B-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R324	(B•B-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R325	(B•B-12)	1-218-935-11	METAL GLAZE	33	5%	1/16W
R326	(B•B-12)	1-218-936-11	METAL GLAZE	39	5%	1/16W
R327	(B•B-12)	1-218-935-11	METAL GLAZE	33	5%	1/16W
R328	(B•B-12)	1-218-936-11	METAL GLAZE	39	5%	1/16W
R329	(B•B-12)	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R330	(B•B-10)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R331	(B•C-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R341	(A•B-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R401	(B•G-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R402	(B•G-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R403	(A•E-2)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R404	(B•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R406	(B•G-4)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R410	(B•G-4)	1-218-936-11	METAL GLAZE	39	5%	1/16W
R411	(B•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R412	(B•F-4)	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R413	(B•G-3)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R414	(B•G-4)	1-218-935-11	METAL GLAZE	33	5%	1/16W
R415	(A•F-3)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R416	(A•F-3)	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R417	(B•G-3)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R418	(B•G-3)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R419	(A•F-3)	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R420	(B•F-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R422	(B•G-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R423	(A•G-4)	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R424	(A•F-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R425	(A•F-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R426	(B•G-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R427	(A•G-3)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R428	(A•F-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R429	(B•G-3)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R430	(B•G-2)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R431	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R432	(B•G-2)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R433	(B•G-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R434	(A•E-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R435	(B•G-2)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R436	(A•F-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R438	(B•F-3)	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R439	(B•F-4)	1-218-963-11	METAL GLAZE	6.8K	5%	1/16W
R440	(B•F-4)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R441	(B•F-4)	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R442	(B•F-3)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R443	(B•F-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R444	(B•F-2)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R445	(B•F-3)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R446	(B•F-3)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R447	(B•F-3)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R448	(B•F-3)	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R449	(B•E-2)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R451	(B•F-3)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R452	(B•E-3)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R453	(B•E-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R454	(B•F-4)	1-218-732-11	METAL CHIP	47K	0.50%	1/16W
R455	(A•F-3)	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W
R456	(B•E-2)	1-218-946-11	METAL GLAZE	270	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R457	(B•F-3)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R458	(B•F-4)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R459	(B•F-4)	1-218-720-11	METAL CHIP	15K	0.50%	1/16W
R461	(A•F-4)	1-218-988-11	METAL GLAZE	820K	5%	1/16W
R462	(B•E-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R463	(B•F-3)	1-216-816-11	METAL CHIP	390	5%	1/16W
R465	(B•E-3)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R466	(B•E-3)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R467	(B•E-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R468	(B•E-6)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R469	(B•F-4)	1-216-817-11	METAL CHIP	470	5%	1/16W
R470	(B•C-8)	1-216-296-00	METAL CHIP	0	5%	1/8W
R471	(B•E-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R472	(A•E-4)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R473	(A•F-5)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R475	(A•D-7)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R476	(B•D-8)	1-216-296-00	METAL CHIP	0	5%	1/8W
R477	(B•E-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R478	(B•E-2)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R479	(B•E-3)	1-218-946-11	METAL GLAZE	270	5%	1/16W
R480	(B•E-3)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R482	(B•E-3)	1-218-945-11	METAL GLAZE	220	5%	1/16W
R483	(A•F-5)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R484	(B•G-4)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R485	(A•E-2)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R486	(B•D-7)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R487	(B•E-2)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R488	(B•E-4)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R489	(B•D-4)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R490	(A•D-3)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R491	(A•E-4)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R492	(B•E-2)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R495	(A•E-3)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R497	(B•C-6)	1-216-296-00	METAL CHIP	0	5%	1/8W
R498	(B•D-6)	1-216-296-00	METAL CHIP	0	5%	1/8W
R499	(A•E-2)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R501	(A•E-3)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R502	(B•E-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R503	(A•D-6)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R504	(A•E-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R505	(B•D-5)	1-218-939-11	METAL GLAZE	68	5%	1/16W
R509	(A•D-7)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R510	(B•D-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R513	(B•D-7)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R514	(A•E-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R516	(B•D-6)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R517	(A•D-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R518	(A•E-6)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R521	(A•D-6)	1-218-950-11	METAL GLAZE	560	5%	1/16W
R522	(A•D-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W

VC-129

VC-129 address display
A • C-5
→ XY axes
→ Side A or Side B

Ref.No.	Address	Part No.	Description			Remark
R523	(A•E-6)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R524	(B•D-7)	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W
R526	(B•E-7)	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W
R527	(B•D-7)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R528	(B•D-6)	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R529	(B•E-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R531	(B•D-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R533	(B•D-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R534	(A•E-7)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R535	(A•E-7)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R536	(A•E-6)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R537	(A•E-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R538	(A•E-6)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R539	(A•E-6)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R540	(A•E-6)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R541	(B•F-6)	1-218-962-11	METAL GLAZE	5.6K	5%	1/16W
R542	(B•E-6)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R543	(A•D-5)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R545	(A•D-4)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R552	(B•F-5)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R553	(B•C-8)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R554	(B•C-7)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R555	(B•C-7)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R556	(B•D-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R557	(B•C-8)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R558	(B•C-8)	1-218-976-11	METAL GLAZE	82K	5%	1/16W
R559	(B•B-8)	1-216-864-11	METAL CHIP	0	5%	1/16W
R561	(A•D-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R565	(B•D-7)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R566	(B•D-7)	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R567	(B•D-7)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R568	(B•D-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R569	(B•D-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R570	(A•C-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R571	(A•C-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R572	(A•C-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R573	(A•C-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R574	(A•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R575	(B•C-5)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R576	(B•C-6)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R577	(B•C-6)	1-218-942-11	METAL GLAZE	120	5%	1/16W
R578	(B•C-6)	1-218-976-11	METAL GLAZE	82K	5%	1/16W
R579	(B•D-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R581	(B•C-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R582	(B•D-5)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R583	(B•D-5)	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R584	(B•D-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R585	(B•D-5)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R586	(B•D-5)	1-218-958-11	METAL GLAZE	2.7K	5%	1/16W
R587	(B•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R588	(B•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R589	(B•C-6)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R590	(A•E-3)	1-218-955-11	METAL GLAZE	1.5K	5%	1/16W
R591	(A•D-6)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R592	(B•E-2)	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R593	(B•E-2)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R594	(B•F-2)	1-218-968-11	METAL GLAZE	18K	5%	1/16W
R595	(B•F-2)	1-218-961-11	METAL GLAZE	4.7K	5%	1/16W
R596	(B•E-2)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R598	(A•C-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R599	(A•C-7)	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W
R601	(A•H-9)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R603	(A•G-8)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R604	(A•G-8)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R608	(B•F-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R609	(B•F-8)	1-218-721-11	METAL CHIP	16K	0.50%	1/16W
R610	(B•F-8)	1-216-821-11	METAL CHIP	1K	5%	1/16W
R611	(B•G-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R612	(B•G-9)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R613	(B•E-10)	1-218-933-11	METAL GLAZE	22	5%	1/16W
R614	(B•G-9)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R616	(A•G-10)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R617	(B•F-9)	1-218-937-11	METAL GLAZE	47	5%	1/16W
R618	(B•F-10)	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R619	(B•G-9)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R620	(B•G-8)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R652	(B•G-12)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R653	(B•F-12)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R654	(A•F-10)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R655	(A•H-11)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R656	(A•H-12)	1-218-937-11	METAL GLAZE	47	5%	1/16W
R657	(B•F-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R659	(B•G-11)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R670	(A•D-9)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R671	(A•F-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R672	(A•F-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R674	(A•H-10)	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W
R675	(A•H-10)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R679	(A•H-10)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R680	(A•H-11)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R682	(A•H-11)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R684	(A•H-11)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R685	(A•H-11)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R686	(A•H-11)	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R687	(A•H-12)	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R689	(A•H-12)	1-218-947-11	METAL GLAZE	330	5%	1/16W
R690	(A•H-12)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R691	(A•F-12)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R692	(B•E-11)	1-218-948-11	METAL GLAZE	390	5%	1/16W
R693	(A•F-12)	1-218-966-11	METAL GLAZE	12K	5%	1/16W

Ref.No.	Address	Part No.	Description			Remark
R694	(B•E-11)	1-218-966-11	METAL GLAZE	12K	5%	1/16W
R695	(B•E-12)	1-218-959-11	METAL GLAZE	3.3K	5%	1/16W
R696	(B•E-12)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R697	(A•F-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R698	(A•E-12)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R699	(B•E-12)	1-218-952-11	METAL GLAZE	820	5%	1/16W
R700	(B•E-12)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R701	(A•E-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R702	(B•E-12)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R703	(B•H-10)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R705	(A•D-9)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R901	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R902	(B•H-7)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R903	(A•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R904	(A•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R905	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R906	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R907	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R908	(B•H-5)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R909	(A•G-4)	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R910	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R911	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R912	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R913	(B•F-6)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R914	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R915	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R916	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R917	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R918	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R919	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R920	(B•G-5)	1-218-949-11	METAL GLAZE	470	5%	1/16W
R921	(B•F-6)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R922	(B•F-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R923	(B•F-6)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R924	(B•F-6)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R926	(A•F-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R927	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R928	(A•G-5)	1-218-951-11	METAL GLAZE	680	5%	1/16W
R930	(B•H-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R932	(A•G-4)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R934	(A•F-5)	1-218-983-11	METAL GLAZE	330K	5%	1/16W
R935	(A•F-7)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R936	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R937	(B•H-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R938	(B•G-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R939	(B•H-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R940	(B•H-5)	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R941	(A•B-7)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R943	(A•B-9)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R944	(A•B-8)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W

Ref.No.		Part No.	Description			Remark
R945	(A•B-8)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R946	(A•B-8)	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R947	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R948	(B•G-5)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R949	(B•G-5)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R950	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R951	(B•G-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R952	(B•G-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R953	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R954	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R955	(B•G-7)	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R958	(B•G-5)	1-218-990-11	METAL GLAZE	0	5%	1/16W
R959	(B•G-5)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R960	(B•H-7)	1-218-941-11	METAL GLAZE	100	5%	1/16W
R961	(B•H-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R962	(B•H-6)	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R963	(A•H-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R964	(A•H-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R965	(A•H-6)	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R966	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R967	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R968	(A•F-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R969	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R970	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R971	(A•G-4)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R972	(A•F-5)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R973	(A•F-5)	1-218-985-11	METAL GLAZE	470K	5%	1/16W
R974	(A•F-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R975	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R976	(A•G-5)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R977	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R978	(A•F-7)	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R979	(A•G-4)	1-218-953-11	METAL GLAZE	1K	5%	1/16W

< VARIABLE RESISTOR >

RV551	(A•C-7)	1-241-474-11	RES, ADJ, CERMET 470

< CRYSTAL >

X201	(A•A-9)	1-579-671-11	VIBRATOR, CRYSTAL (11.7MHz)
X401	(A•D-7)	1-579-366-11	VIBRATOR, CRYSTAL
X601	(A•H-10)	1-579-622-11	VIBRATOR, CRYSTAL (28.375MHz)
X651	(A•G-12)	1-579-669-21	VIBRATOR, LITIUM NIOBATE (16MHz)
X901	(A•G-5)	1-579-550-11	VIBRATOR, CRYSTAL (32kHz)

< VIBRATOR >

XTL901	(A•E-7)	1-579-369-21	VIBRATOR (10MHz)

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The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VF-55 VF-56

Ref. No.	Part No.	Description	Remark
	A-7063-404-A	VF-55 BOARD, COMPLETE	
		**********************	
		(Ref. No 6,000 Series)	
		< CAPACITOR >	
C901	1-137-306-11	FILM CHIP 0.1uF 5% 16V	
C902	1-164-634-11	CERAMIC CHIP 1uF 16V	
C903	1-135-166-21	TANTALUM CHIP 47uF 10% 10V	
C904	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C905	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C906	1-126-176-11	ELECT 220uF 20% 10V	
		< CONNECTOR >	
CN901	1-573-916-11	CONNECTOR, FFC/FPC (ZIF) 7P	
CN902	1-580-085-31	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D901	8-719-404-19	DIODE LN1251C	
		< IC >	
IC901	8-759-420-01	IC AN2512S	
		< RESISTOR >	
R901	1-216-813-11	METAL CHIP 220 5% 1/16W	
R902	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R903	1-216-809-11	METAL CHIP 100 5% 1/16W	
R904	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	
R905	1-218-887-11	METAL CHIP 47K 0.50% 1/16W	
R906	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R907	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R908	1-216-013-00	METAL CHIP 33 5% 1/10W	
R909	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R910	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R911	1-216-845-11	METAL CHIP 100K 5% 1/16W	
		< VARIABLE RESISTOR >	
RV901	1-238-858-11	RES, ADJ, CERMET 47K (AFC)	
RV902	1-238-852-11	RES, ADJ, CERMET 470 (V SIZE)	
RV903	1-228-762-00	RES, ADJ, METAL GLAZE 1M (BRIGHT)	
		< THERMISTOR >	
TH901	1-809-350-21	THERMISTOR, NTC (2125) (500Ω)	

****

Ref. No.	Part No.	Description	Remark
	A-7063-405-A	VF-56 BOARD, COMPLETE	
		**********************	
		(Ref. No 7,000 Series)	
		< CAPACITOR >	
C951	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
⚠C952	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
⚠C953	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
⚠C954	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
C955	1-127-515-11	ELECT(SOLID) 47uF 20% 6.3V	
C956	1-162-948-11	CERAMIC CHIP 39PF 5% 50V	
C957	1-164-611-11	CERAMIC CHIP 0.001uF 10% 500V	
C958	1-126-610-11	ELECT CHIP 2.2uF 0 35V	
C959	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C960	1-104-484-11	ELECT 82uF 20% 10V	
		< CONNECTOR >	
CN951	1-580-087-21	CONNECTOR, BOARD TO BOARD 10P	
CN952	1-695-523-11	PIN, CONNECTOR (1.5MM)(SMD) 4P	
		< DIODE >	
D951	8-719-027-48	DIODE MA142WA	
		< COIL >	
L951	1-412-031-11	INDUCTOR CHIP 47uH	
L952	1-412-959-11	INDUCTOR 47uH	
⚠L953	1-402-680-11	COIL, FERRITE (HCL)	
		< TRANSISTOR >	
Q951	8-729-402-32	TRANSISTOR 2SD1819A-R	
Q952	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q953	8-729-106-68	TRANSISTOR 2SD1615A-GP	
		< RESISTOR >	
R951	1-216-817-11	METAL CHIP 470 5% 1/16W	
R953	1-216-817-11	METAL CHIP 470 5% 1/16W	
R955	1-216-820-11	METAL CHIP 820 5% 1/16W	
R956	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R957	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R958	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R959	1-216-795-11	METAL GLAZE 6.8 5% 1/16W	
R960	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R961	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R962	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R963	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R964	1-216-857-11	METAL CHIP 1M 5% 1/16W	
		< VARIABLE RESISTOR >	
RV951	1-238-854-11	RES, ADJ, CERMET 2.2K (CONTRAST)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
		< TRANSFORMER >	
⚠T951	1-453-124-11	TRANSFORMER ASSY, FLYBACK	
		< SOCKET ASSY >	
⚠W951	1-540-019-21	SOCKET ASSY, CRT	

****

MISCELLANEOUS
****

Ref.No.	Part No.	Description	Remark
13	1-466-756-11	SWITCH BLOCK, CONTROL (FK-33)	
17	1-537-437-21	TERMINAL BOARD (AUDIO, VIDEO OUT)	
29	1-542-190-11	MICROPHONE UNIT	
64	1-466-757-11	SWITCH BLOCK, CONTROL (CF-33)	
65	1-809-898-11	DISPLAY PANEL, LIQUID CRYSTAL	
67	1-537-436-11	TERMINAL BOARD, BATTERY	
74	1-645-053-12	FP-603 FLEXIBLE BOARD	
118	1-644-941-11	FP-540 FLEXIBLE BOARD	
120	1-644-943-11	FP-550 FLEXIBLE BOARD	
121	1-644-947-11	FP-537 FLEXIBLE BOARD	
123	8-848-700-01	DEVICE, LENS LSV-100A	
129	1-547-529-21	FILTER BLOCK, OPTICAL (OFB-03-03)	
224	1-645-057-11	FP-574 FLEXIBLE BOARD	
328	1-645-056-11	FP-573 FLEXIBLE BOARD	
401	8-848-700-01	DEVICE, LENS LSV-100A	
IC721	A-7030-371-A	CCD BLOCK ASSY (AUTO) (ICX059AK-2) (CCD IMAGER)	
M901	A-7048-660-A	DRUM BLOCK ASSY (DGH-80A-R)	
M902	8-835-329-12	MOTOR, DC U-21A (CAPSTAN)	
M903	1-541-607-21	MOTOR, DC (LA12G-344VA) (LOADING)	
M904	1-547-574-11	IRIS (IRX-002)	
M906	8-835-491-01	MOTOR, STEPPING (SPB-01S01N) (ZOOM)	
S991	1-572-611-11	SWITCH, LEAF (C LOCK)	
S992	1-572-802-12	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, Hi8 MP)	
⚠V901	1-452-673-11	CRT ASSY (M01KXX90WB)	
W114	1-644-946-11	FP-605 FLEXIBLE BOARD	
W721	1-644-944-11	FP-580 FLEXIBLE BOARD	

****

ACCESSORIES & PACKING MATERIALS
****

Ref.No.	Part No.	Description	Remark
	1-575-334-11	CORD, CONNECTION (S VIDEO)	
	1-575-335-21	CORD, CONNECTION (AUDIO/VIDEO)	
	1-693-192-21	REMOTE COMMANDER (RMT-703)	
⚠	1-695-531-11	ADAPTOR, CONVERSION 4P (UK)	
	1-696-713-11	CORD, CONNECTION (FOR AC-V500)	
	3-755-419-41	MANUAL, INSTRUCTION (ENGLISH)	
	3-755-419-51	MANUAL, INSTRUCTION (FRENCH, GERMAN)	(AEP)
	3-755-419-61	MANUAL, INSTRUCTION (SPANISH, ITALIAN)	(AEP)
	3-755-419-71	MANUAL, INSTRUCTION (DUTCH, SWEDISH)	(AEP)
	3-755-419-81	MANUAL, INSTRUCTION (PORTUGUESE)	(AEP)
	3-755-419-91	MANUAL, INSTRUCTION (DANISH, FINNISH)	(AEP)
	3-756-028-41	MANUAL, INSTRUCTION (FOR HSA-V500) (ENGLISH, FRENCH, SPANISH, GERMAN)	(AEP)
	3-756-028-51	MANUAL, INSTRUCTION (FOR HSA-V500) (DUTCH, SWEDISH, ITALIAN, CHINESE)	(AEP)
	3-756-357-11	INSTRUCTION	
	3-783-517-01	BELT (S), SHOULDER	
*	3-949-134-01	CUSHION (LOWER)	
	3-950-096-01	HOLDER, REMOTE CONTROL	
*	3-950-398-01	INDIVIDUAL CARTON	
*	3-950-399-01	CUSHION, ACC	
**	AC-V500	AC POWER ADAPTOR	
**	HSA-V500	HANDYCAM STATION	
***	NP-500	BATTERY PACK	

Note.

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.

*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

****

HARDWARE LIST
****

Ref.No.	Part No.	Description	Remark
#1	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT	
#2	7-627-553-28	SCREW, PRECISION +P 2X2.5	
#3	7-624-102-04	STOP RING 1.5, TYPE -E	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 256.

7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

7-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Regulated power supply
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)[Note 1]	J-6082-053-A	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	Measuring pin tool for camera section	J-6082-139-A	For adjusting the camera section
J-8	Measuring pin tool for video section	J-6082-140-A	For adjusting the video section
J-9	Extension cable (30P, 0.8 mm)	J-6082-189-A	For extension between the LD-63 board (CN752) and VC-129 board (CN652)
J-10	Extension cable (28P, 0.8 mm)	J-6082-190-A	For extension between the AU-146 board (CN801) and VC-129 board (CN304)
J-11	Extension cable (16P, 0.8 mm)	J-6082-191-A	For extension between the CD-101 board (W721) and VC-129 board (CN601)
J-12	Extension cable (17P, 0.5 mm)	J-6082-194-A	For extension between the EZ-3 board (CN112) and JK board
J-13	Conversion connector (7P, 0.8 mm ↔ 7P, 0.5 mm)	J-6082-199-A	VF-55 board (CN901) FP-603 conversion
J-14	Extension cable (6P, 1.5 mm)	J-6082-152-A	For extension between the DD-54 board (CN351) and FU-129 board (W012) For extension between the EZ-3 board (CN111) and FU-129 board (W011)
J-15	Mode selector A conversion connector	J-6082-167-A	For adjusting the mechanism section

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new micro processor (8-759-148-35).

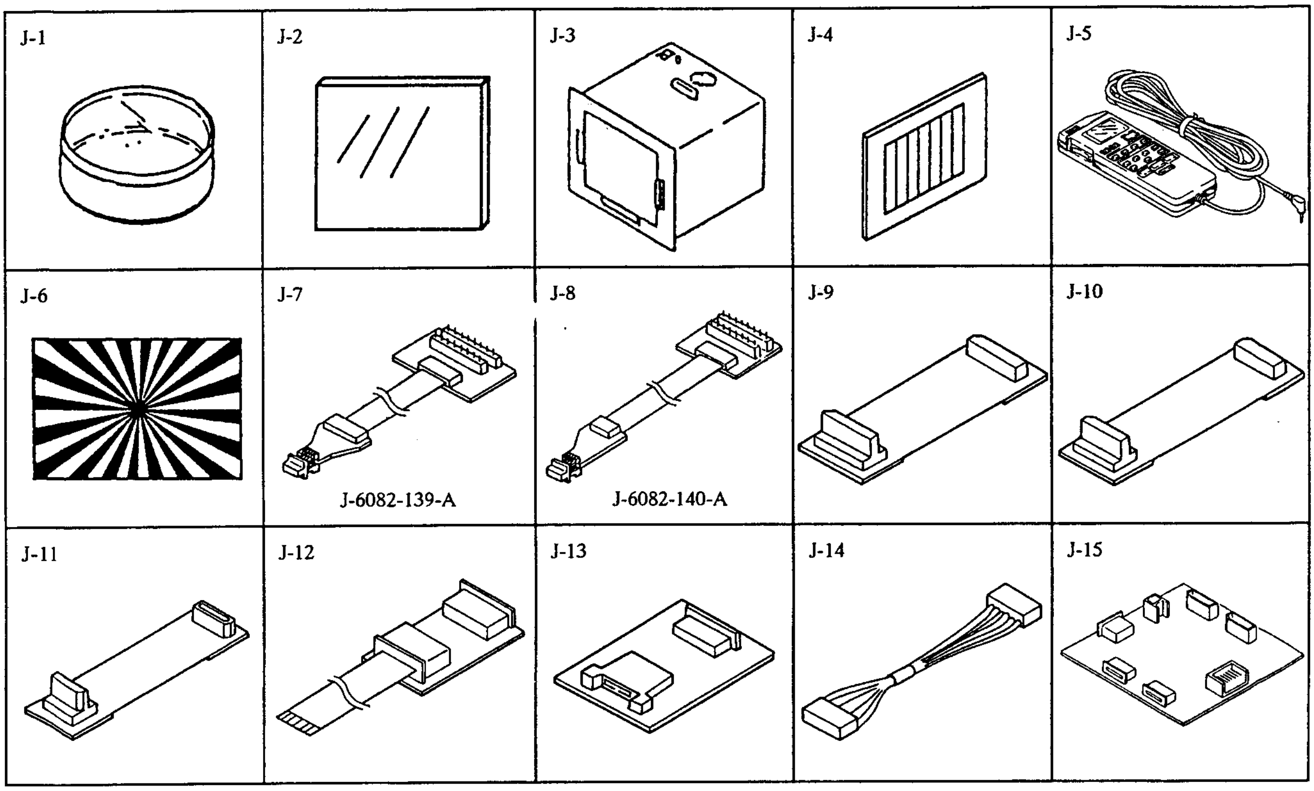

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-6082-139-A
J-8
J-6082-140-A
J-9
J-10
J-11
J-12
J-13
J-14
J-15

Fig. 7-1.

7-1-2. Preparations

Note 1: For further details of how to remove the cabinet and each board, refer to "2. Disassembly".

Note 2: When adjusting only, the lens block and VC-129 board need not be taken apart.

1) Connect the equipments for adjusting as shown in Fig. 7-3.
2) The EVF (Electronic viewfinder) is required for checking the white balance mode and shutter speeds. However, by turning on the "data screen", the same contents can be viewed on the TV monitor. If the EVF is not required, remove CN303 of the VC-129 board.

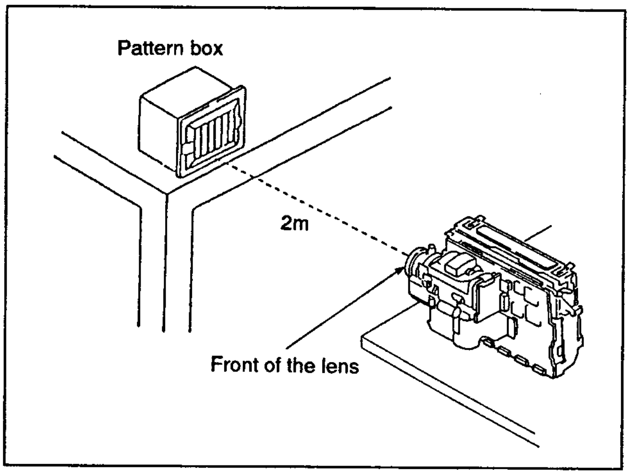

Pattern box
2m
Front of the lens

Fig. 7-2.

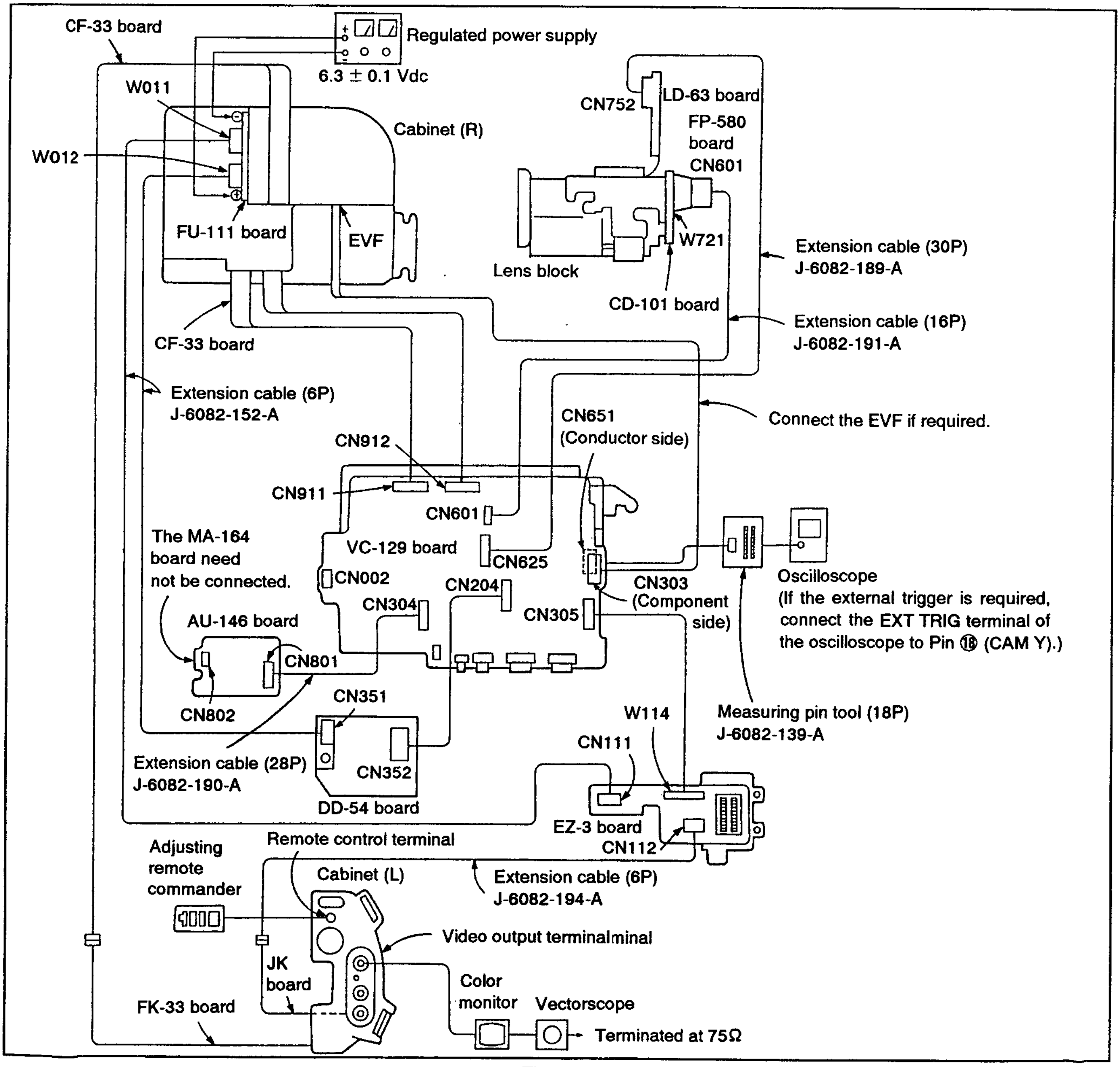

CF-33 board
Regulated power supply
6.3 ± 0.1 Vdc
W011
W012
Cabinet (R)
CN752
LD-63 board
FP-580 board
CN601
FU-111 board
EVF
Lens block
W721
Extension cable (30P)
J-6082-189-A
CD-101 board
Extension cable (16P)
J-6082-191-A
CF-33 board
Extension cable (6P)
J-6082-152-A
CN651
(Conductor side)
Connect the EVF if required.
CN912
CN911
CN601
The MA-164 board need not be connected.
VC-129 board
CN625
CN002
CN204
CN303
(Component side)
CN304
CN305
Oscilloscope
(If the external trigger is required, connect the EXT TRIG terminal of the oscilloscope to Pin ⑱ (CAM Y).)
AU-146 board
CN801
CN802
CN351
Extension cable (28P)
J-6082-190-A
CN352
DD-54 board
W114
CN111
Measuring pin tool (18P)
J-6082-139-A
EZ-3 board
CN112
Adjusting remote commander
Remote control terminal
Cabinet (L)
Extension cable (6P)
J-6082-194-A
Video output terminalminal
JK board
Color monitor
Vectorscope
FK-33 board
Terminated at 75Ω

Fig. 7-3.

7-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

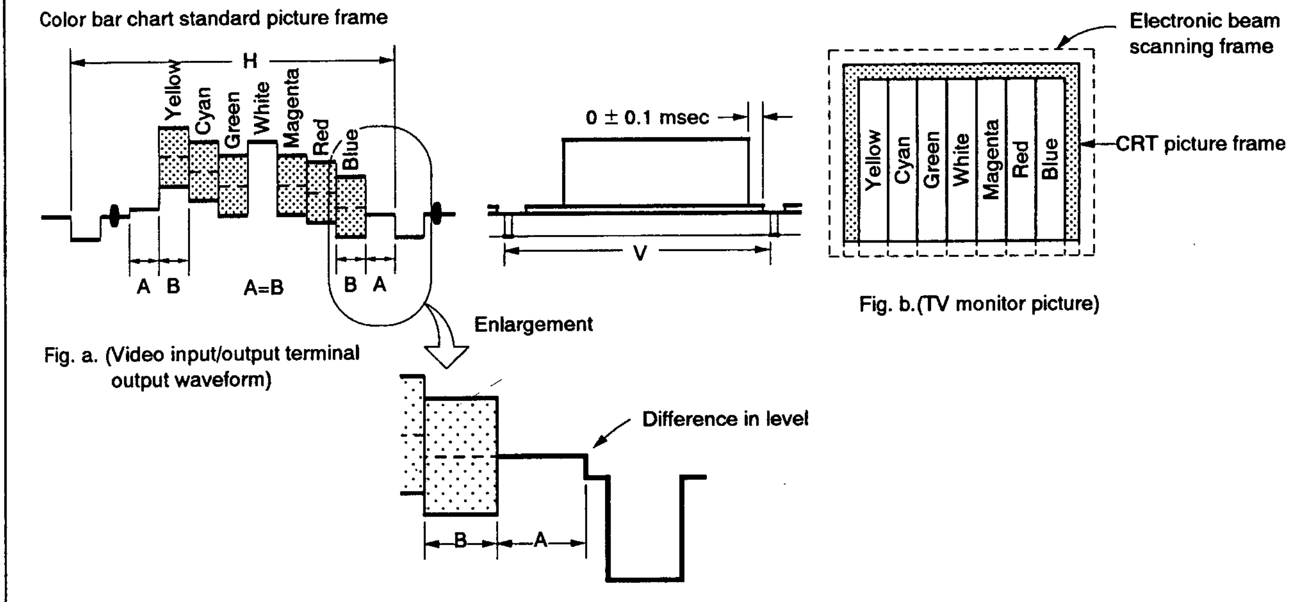
1. Camera/player power switch (CF-33 board S114) ····Camera
2. Standby switch (CF-33 board S113) ···················· Standby
3. Auto lock cover (CF-33 board S108) ······················ Open
4. Focus button (CF-33 S101) ································Manual
5. Program AE button (CF-33 board S103)······················Off
6. Exposure button (CF-33 board S102)················ Automatic

2. Adjusting Procedure

Adjust in the given order.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart.
   (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and adjust the zoom lever so that the white pattern is the same size and at the same position as the color bar chart (Standard picture frame).


Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
Fig. a. (Video input/output terminal output waveform)
0 ± 0.1 msec
V
Enlargement
Difference in level
B
A
Electronic beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
Fig. b.(TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 7-4.

3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm× 841 mm) imitation Japanese vellum to a black one, and make the chart shown in Fig. 4-5.

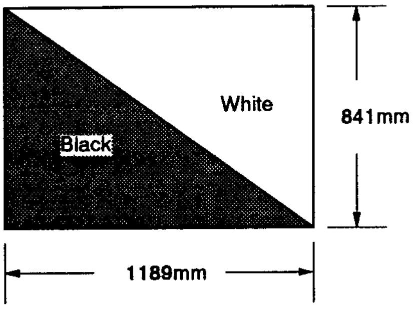

White
Black
841mm
1189mm

Fig. 7-5.

Note: Use non-reflecting and matted imitation Japanese vellum that are above A0. When making the chart, make sure that the line between the black and white is even.

7-1-4. Adjusting Remote Commander

The camera section is adjusted by changing the constant or coefficient of the digital signal processing calculation, or modifying the output voltage of the EVR IC (VC-129 board IC654). This is controlled by the camera micro processor (VC-129 board IC653), which reads the data written in the nonvolatile memory (VC-129 board IC651: EEPROM), and transmits it to the digital signal processing circuit and EVR.

To perform adjustments, adjustment data written in the nonvolatile memory must be rewritten, using the adjusting remote commander.

The adjusting remote commander uses the remote commander signal line (LANC) to communicate mutually with the camera microprocessor. The page, address and the up/down commands of the data are transmitted from the adjusting remote commander to the camera micro processor. And, the page, address, and data are transmitted for the vice versa.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote control terminal (JK board).
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 7-6.

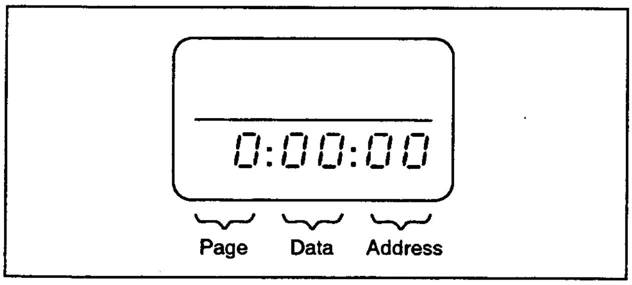


Fig. 7-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

   - Changing the address
     The address increases when the FF (►►) button is pressed, and decreases when the REW (◄◄) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory.
     (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 6, address: 00, and adjust the data to 01. This releases the write protect of page F, and enables the camera section (Addresses 01 to DF of page F) to be adjusted.
5) After completing all adjustments, turn off the main power supply (6.3V) once. This releases the adjustment mode (other than page F).

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

7-1-5. Page F Address List

Note 1: The data already listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are values just after executing "Page F Data Initialization" and "Page F Data Modification". They are different from the values after executing all adjustments.

Note 3: In some cases, data have been input to the page F addresses D0 to EF. This has no relation to the adjustments.

Address	**Name**	**Function** **[ ] contains the adjustment voltage output terminal**	**Adjustment data**	
			Initial value	**Memo column**
00	SET ID	Set ID	40	40
01	NT PAL		01	01
02	FT SW	DDS display mode switching Data Mode 00 Normal B8 Focus position adjustment	00	00
03	FADER LEVEL	AE REF level change in fader	E0	E0
04	FADER ENDTIM	AE REF modulation time setting in fader	10	10
05	CORE Y GAIN	Not used (Camera micro processor versions 1 and 2) Camera core Y gain (camera micro processor version 3)	3C	3C
06	VSUB	CCD imager V SUB voltage adjustment [IC654 ③]	80	
07	VPGH	CCD imager PG voltage adjustment [IC654 ④]	80	
08	VREF Y	Camera core Y D/A reference voltage, SYNC level adjustment [IC654 ⑤]	7D	
09	VREF C	Camera core camera D/A reference voltage, burst level adjustment [IC654 ⑥]	61	
0A	HALL GAIN	Hall amplifier gain adjustment [IC654 ⑦] } HALL adjustment	80	
0B	HALL OFFSET	Hall amplifier off set adjustment [IC654 ⑧]	80	
0C	LOWLIGHT START	Low illuminance level modulation start setting	6A	6A
0D	REF 2V	2V reference voltage for hall element [IC654 ⑫]	68	68
0E	AD REF	Black level during A/D conversion [IC654 ⑬]	A0	A0
0F	CORE DETH	CCD correction horizontal correlated control	04	04
10	CORE OTHER	Various camera core mode settings	54	54
11	CORE APCN4	Horizontal aperture setting	B5	B5
12	CORE APCN5	Vertical aperture setting	3F	3F
13	CORE EFFECT	Camera core special effects control	A0	A0
14	CORE MATR	RED matrix constant	6D	6D
15	CORE MATB	BLUE matrix constant	26	26
16	CORE BURST LEVEL	Burst level setting, color modulation ON/OFF Data Mode 38 Normal 3A Color modulation stopped	38	38
17	CORE CHROMA DLY	Y/C delay adjustment	28	28
18	CORE Y SETUP	Set up level setting	02	02
19	CORE VHAPCN	Slice and level of aperture signal	05	05

Table 7-2 (1).

Address	Name	Function [ ] contains the adjustment voltage output terminal		Adjustment data	
				Initial value	Memo column
1A	CORE B Y3200 HUE	B–Y HUE	Color reproductivity adjustments	FA	
1B	CORE R Y3200 HUE	R–Y HUE		F1	
1C	CORE R Y3200 GAIN	R–Y GAIN		48	
1D	CORE B Y3200 GAIN	B–Y GAIN		22	
1E	CS APCCUT	Low illuminance aperture and chroma suppress level		22	22
1F	NEXT DEF BIT	CCD imager correction pattern	CCD imager correction data writing	00	
20	CCD DEFECT0	CCD imager correction data		00	
21	CCD DEFECT1	CCD imager correction data		00	
22	CCD DEFECT2	CCD imager correction data		00	
23	CCD DEFECT3	CCD imager correction data		00	
24	CCD DEFECT4	CCD imager correction data		00	
25	CCD DEFECT5	CCD imager correction data		00	
26	CCD DEFECT6	CCD imager correction data		00	
27	CCD DEFECT7	CCD imager correction data		00	
28	CCD DEFECT8	CCD imager correction data		00	
29	CCD DEFECT9	CCD imager correction data		00	
2A	CCD DEFECT10	CCD imager correction data		00	
2B	CCD DEFECT11	CCD imager correction data		00	
2C	CCD DEFECT12	CCD imager correction data		00	
2D	CCD DEFECT13	CCD imager correction data		00	
2E	CCD DEFECT14	CCD imager correction data		00	
2F	CLPFLG	Digital clamp mode setting		00	00
30	ADMIN	Offset minimum value setting		50	50
31	C SHIFT	C shift amount setting		02	02
32	Y SHIFT	Y shift amount setting		02	02
33	LOWLIGHT START2	Low illuminance REF level modulation start setting 2		80	80
34	LOWLIGHT CS	Low illuminance color erasure setting		80	80
35	LOWLIGHT LEVEL			F0	F0
36	DEFECT DELAY			00	00
37				00	00
38	R3200 H	3200k Red reference data H	Auto white balance reference data input	9D	
39	R3200 L	3200k Red reference data L		09	
3A	B3200 H	3200k Blue reference data H		56	
3B	B3200 L	3200k Blue reference data L		CF	
3C	G3200 H	3200k Green reference data H		7A	
3D	G3200 L	3200k Green reference data L		8E	
3E	RCONTREF	3200k RCONT adjustment value	Pre-white balance adjustment	36	
3F	BCONTREF	3200k BCONT adjustment value		55	
40	NORM R	R regular correction coefficient, reference 80h	Auto white balance adjustment	8F	
41	NORM B	B regular correction coefficient, reference 40h		6C	
42	SHUT IN	Indoor determination shutter data		A8	A8
43	SHUT OUT	Outdoor determination shutter data		A0	A0
44	IRIS IN	Indoor determination hall data	IRIS IN/OUT adjustment	7D	
45	IRIS OUT	Outdoor determination hall data		85	

Table 7-2 (2).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data Initial value	 Memo column
46	G LEVEL	High luminance Green integral level	02	02
47	G WIDTH	High luminance Green integral level range	03	03
48	MAT HUE	Variable linear matrix HUE coefficient } Linear matrix	00	
49	MAT GAIN	Variable linear matrix GAIN coefficient } adjustment	00	
4A	ADJ RCONT		35	35
4B	B DIFFERENCE	Reference difference from outdoor fixed value	0A	0A
4C	BOTTOM SLP R	Slant R coefficient of drawing frame bottom	30	30
4D	BOTTOM SLP B	Slant B coefficient of drawing frame bottom	58	58
4E	MIDDLE SLP R	Slant R coefficient of drawing frame middle	62	62
4F	MIDDLE SLP B	Slant B coefficient of drawing frame middle	47	47
50	TOP SLP R	Slant R coefficient of drawing frame top	6C	6C
51	TOP SLP B	Slant B coefficient of drawing frame top	1A	1A
52	KEIKO R	Slant R coefficient of drawing frame fluorescent lamp	66	66
53	KEIKO B	Slant B coefficient of drawing frame fluorescent lamp	18	18
54	BOTTOM UP	Upper value of drawing frame bottom	8C	8C
55	BOTTOM DWN	Lower value of drawing frame bottom	6B	6B
56	MIDDLE UP	Upper value of drawing frame middle	B8	B8
57	MIDDLE DWN	Lower value of drawing frame middle	9F	9F
58	TOP UP	Upper value of drawing frame top	80	80
59	TOP DWN	Lower value of drawing frame top	66	66
5A	KEIKO	Lower value of output frame fluorescent lamp output	6C	6C
5B	KEIKO DWN	Lower value of drawing frame fluorescent lamp	5C	5C
5C	R TOP LMT	Upper value of drawing frame R	6C	6C
5D	R DWN LMT	Lower value of drawing frame R	20	20
5E	B TOP LMT	Upper value of drawing frame B	83	83
5F	B IN TOP	Upper value of INDOOR drawing frame B	67	67
60	B IN MAX	Upper value of INDOOR output frame B	5C	5C
61	B OUT MIN	Lower value of OUTDOOR output frame B	5C	5C
62	B OUT DWN	Lower value of OUTDOOR drawing frame B	4A	4A
63	B DWN LMT	Lower value of drawing frame B	20	20
64	ADJ BCONT		50	50
65	T M DIVID	Border between top and middle of drawing frame	5B	5B
66	B M DIVID	Border between middle and bottom of drawing frame	3C	3C
67	DELAY TIME	Auto white balance tracking speed Data Mode 0C Normal 01 High speed tracking	0C	0C
68	B IN MIN	INDOOR output frame B bottom	33	33
69	OUT HYS OFF	OUTDOOR hysteresis off difference	0C	0C
6A	OUT B HYS	OUTDOOR hysteresis amount	06	06
6B	AWB MODE	Auto white balance adjustment mode Data Mode 00 Normal D0 AWB adjustment F1 AWB all tracking	00	00

Table 7-2 (3).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
6C	IN B HYS		04	04
6D	IN R HYS		02	02
6E	KAKE NORM R		20	20
6F	KAKE NORM B		40	40
70	AE REF1		00	00
71	AE REFH		1B	1B
72	AGC MIN		F6	F6
73	AE MIN1	MAX GAIN adjustment	23	
74	AE MAX 1		80	80
75	IRIS OFFSET		D0	D0
76	E AE KEISU		00	00
77	AE FUNCTION		02	02
78	BL HOSEI		40	40
79	JITEISU DOWN		28	28
7A	JITEISU UP		0D	0D
7B	AE KNEE		FF	FF
7C	ORETEN SET		13	13
7D	OMOMIOUT		40	40
7E	AFC WIDE		03	03
7F	AFC GAIN		01	01
80	AFC LIMIL		60	60
81	HIST P KEISU		20	20
82	HIST H KEISU		E0	E0
83	HIST L KEISU		90	90
84	GYAKOU JITEISU		08	08
85	SABUN LIMIT		40	40
86	FUZZY RULE1		90	90
87	FUZZY RULE2		C0	C0
88	FUZZY RULE3		B0	B0
89	FUZZY RULE4		A0	A0
8A	FUZZY RULE5		70	70
8B	FUZZY RULE6		80	80
8C	FUZZY RULE7		A0	A0
8D	FUZZY RULE8		98	98
8E	FUZZY RULE9		90	90
8F	FUZZY RULE10		78	78
90	IRIS MINL		42	42
91	IRIS MINH		02	02
92	DELTA SHUTGAIN		04	04
93	DOORLEVEL H		04	04
94	DOORLEVEL L		D2	D2
95	ZOOM DROP1	ZOOM1=F-No. drop correction by 1	4B	4B
96	ZOOM DROP2	ZOOM1=F-No. drop correction by 1	60	60
97	OMONI2	Weighting by changing to three frames (Surrounding Frame)	FF	FF

Table 7-2 (4).

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Name</th><th rowspan="2" colspan="2">Function
[ ] contains the adjustment voltage output terminal</th><th colspan="2">Adjustment data</th></tr>
<tr><th>Initial value</th><th>Memo column</th></tr>
<tr><td>98</td><td></td><td colspan="2">Not used</td><td>00</td><td>00</td></tr>
<tr><td>99</td><td>ZOOM LANC SPEED</td><td colspan="2">LANC zoom speed</td><td>02</td><td>02</td></tr>
<tr><td>9A</td><td>AF FT SW</td><td colspan="2">Impose tool display switching</td><td>00</td><td>00</td></tr>
<tr><td>9B</td><td>MAN CONTROL</td><td colspan="2">Manual focus variable bit-3 threshold bit-7 sensitivity</td><td>33</td><td>33</td></tr>
<tr><td>9C</td><td>AF MODE SW</td><td colspan="2">Test SW</td><td>00</td><td>00</td></tr>
<tr><td>9D</td><td>OFF FC</td><td>Focus offset lower</td><td rowspan="6">Flange back adjustments</td><td>00</td><td></td></tr>
<tr><td>9E</td><td>OFF FC</td><td>Focus offset upper</td><td>2C</td><td></td></tr>
<tr><td>9F</td><td>LENZ WIDE</td><td>Zoom wide end lower</td><td>00</td><td></td></tr>
<tr><td>A0</td><td>LENZ WIDE</td><td>Zoom wide end upper</td><td>01</td><td></td></tr>
<tr><td>A1</td><td>LENZ TELE</td><td>Zoom tele end lower</td><td>E0</td><td></td></tr>
<tr><td>A2</td><td>LENZ TELE</td><td>Zoom tele end upper</td><td>02</td><td></td></tr>
<tr><td>A3</td><td>MF SPEED</td><td colspan="2">Manual focus gain</td><td>48</td><td>48</td></tr>
<tr><td>A4</td><td>ZM SPEED10</td><td colspan="2">Zoom speed</td><td>98</td><td>98</td></tr>
<tr><td>A5</td><td>ZM SPEED32</td><td colspan="2">Zoom speed</td><td>A0</td><td>A0</td></tr>
<tr><td>A6</td><td>ZM SPEED54</td><td colspan="2">Zoom speed</td><td>21</td><td>21</td></tr>
<tr><td>A7</td><td>ZM SPEED76</td><td colspan="2">Zoom speed</td><td>64</td><td>64</td></tr>
<tr><td>A8</td><td>ZM HYS</td><td colspan="2">Zoom speed hysteresis</td><td>00</td><td>00</td></tr>
<tr><td>A9</td><td>Z PHASE</td><td colspan="2">Focus mechanism end, flange back adjustment</td><td>08</td><td></td></tr>
<tr><td>AA</td><td>FCLIM</td><td colspan="2">Focus NEAR limit</td><td>00</td><td>00</td></tr>
<tr><td>AB</td><td>ADJ0</td><td colspan="2">For adjusting (ZOOM OFF MODE)<table><tr><th>Data</th><th>Mode</th></tr><tr><td>FE</td><td>Normal</td></tr><tr><td>01</td><td>Zoom position fixed</td></tr></table></td><td>FE</td><td>FE</td></tr>
<tr><td>AC</td><td>ADJ1</td><td colspan="2">For adjusting (WND A)</td><td>1E</td><td>1E</td></tr>
<tr><td>AD</td><td>ADJ2</td><td colspan="2">For adjusting (WND B)</td><td>5A</td><td>5A</td></tr>
<tr><td>AE</td><td>ADJ3</td><td colspan="2">For adjusting</td><td>00</td><td>00</td></tr>
<tr><td>AF</td><td>AF0</td><td colspan="2">Noise threshold</td><td>55</td><td>55</td></tr>
<tr><td>B0</td><td>AF1</td><td colspan="2">Focus motor movement amount</td><td>12</td><td>12</td></tr>
<tr><td>B1</td><td>AF2</td><td colspan="2">Core ring amount</td><td>04</td><td>04</td></tr>
<tr><td>B2</td><td>AF3</td><td colspan="2">Noise level</td><td>30</td><td>30</td></tr>
<tr><td>B3</td><td>AF4</td><td colspan="2">Climbing threshold</td><td>30</td><td>30</td></tr>
<tr><td>B4</td><td>AF5</td><td colspan="2">Wobbling amplitude</td><td>55</td><td>55</td></tr>
<tr><td>B5</td><td>AF6</td><td colspan="2">Wobbling IIR coefficient</td><td>03</td><td>03</td></tr>
<tr><td>B6</td><td>AF7</td><td colspan="2">Sync detection phase</td><td>01</td><td>01</td></tr>
<tr><td>B7</td><td>AF8</td><td colspan="2">Focus trigger phase</td><td>23</td><td>23</td></tr>
<tr><td>B8</td><td>AF9</td><td colspan="2">Wobbling FIR coefficient</td><td>03</td><td>03</td></tr>
<tr><td>B9</td><td>AF10</td><td colspan="2">AF speed threshold</td><td>18</td><td>18</td></tr>
<tr><td>BA</td><td>AF11</td><td colspan="2">Wobbling amplitude for testing</td><td>00</td><td>00</td></tr>
<tr><td>BB</td><td>AF12</td><td colspan="2">High luminance gate level</td><td>FA</td><td>FA</td></tr>
<tr><td>BC</td><td>AF13</td><td colspan="2">Motor speed for testing</td><td>FF</td><td>FF</td></tr>
<tr><td>BD</td><td>AF14</td><td colspan="2">AF frame for testing</td><td>00</td><td>00</td></tr>
<tr><td>BE</td><td>AF15</td><td colspan="2">AGC gain 0 to 3V</td><td>0A</td><td>0A</td></tr>
<tr><td>BF</td><td>AF16</td><td colspan="2">AGC gain 3 to 5V</td><td>10</td><td>10</td></tr>
</table>

Table 7-2 (5).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
C0	AF17	AND for testing	FF	FF
C1	AF18	AF ID for testing	00	00
C2	AF19	Hall data CLOSE	A8	A8
C3	AF20	Hall data MIDDLE	9A	9A
C4	AF21	Hall data OPEN	7F	7F
C5	AF22	High luminance threshold bit 7-4 HB0 bit3-0 fH	84	84
C6	LINEAR0	Linear motor integral gain	02	02
C7	LINEAR1	Linear motor DC bias value	04	04
C8	LINEAR2	DC bias speed THR	20	20
C9	LINEAR3	Linear motor integral THR lower	18	18
CA	LINEAR4	Reset THR	98	98
CB	LINEAR5	Error amount THR	20	20
CC	LINEAR6	Speed THR	20	20
CD	LINEAR7	Linear motor proportionate gain	DA	DA
CE	LINEAR8	MR output THR	3C	3C
CF	LINEAR9	Micro step number	07	07
D0~EF		Not used (Note 3)	FF	FF
F0		Column for inputting unit's ID No, etc. Not related to unit's operations.	FF	
F1			FF	
F2			FF	
F3			FF	
F4			FF	
F5			FF	
F6			FF	
F7			FF	
F8			FF	
F9			FF	
FA			FF	
FB			FF	
FC			FF	
FD			FF	
FE			FF	
FF			FF	

Table 7-2 (6).

7-1-6. Page 6, Page 2 Address List

The camera adjustment mode can be set by setting the data in the following table to page 6 or 2. (The data of these pages can be set temporarily. When the main power supply (6.3V) is turned off, the original values (normal value) are returned. Therefore, these adjustment modes can be released easily by turning off the main power supply.)

(Example) By setting data: 01 to page: 6, address: 00, the write protect of page F, addresses 01 to DF can be released.

1. Page 6

Address	Adjustment Mode	Data	Function
00	Page F protect	00	Normal (Protect released)
		01	Protect release of address 01 to DF of Page F
01	Camera adjustment switch	00	Normal
	Note: To execute this address adjustment mode, it is necessary to press the PAUSE button of the adjusting remote commander after setting the data.	01	IRIS OPEN, AGC HOLD
		03	IRIS CLOSE1, AGC HOLD
		05	IRIS CLOSE2, AGC MIN
		07	IRIS CLOSE3, AGC MAX
		09	ND0.5 SHUTTER (PAL=1/160, NTSC=1/190)
		0B	ND0.8 SHUTTER (PAL=1/320, NTSC=1/380)
		0D	AWB PRESET1: 3200K PRESET DATA input
		0F	WB 3200K PRESET: Indoor white balance mode
		11	AWB PRESET2: 3200K PRESET DATA input preparations
		13	Flange back adjustment preparations
		15	Flange back adjustment execution
		17	1/2000 shutter mode
		19	MAX GAIN adjustment mode
		2D	EEPROM PRE WRITE: Page F, page E initial data writing
02	DDS display switching	00	Normal
		03	HALL DATA display
		04	R ratio display
		05	B ratio display
		0B	ZOOM switch A/D value display
		0C	Auto focusing display (01: Focusing, 00: Not focusing)
03	Weighting on/off	01	Weighting off
		10	Normal (Weighting on)
11	Page F data initialization completed display	00	Normal (Data can be initialized)
		01	Data initialized
12	Shutter mode	00	Normal
		19	1/4000 shutter mode
21	Flange back adjustment completed display	00	Normal (Flange back adjustable)
		01	Flange back adjusted
25	Auto focus on/off	00	Normal
		01	Auto focus off
26	MR sensor output check	00 08	Normal
		Others	Abnormal

Table 7-3.

2. Page 2

Category	Address	Adjustment Mode	Data	Function
01	37	VH address L		Title horizontal/vertical position (L)
01	38	VH address H		Title horizontal/vertical position (H)
01	39	Data transmission to SG	00	Normal
			01	Data transmission to SG begins

Note: The category is specified by the data of page 2, address 00.
(Example) To specify category 01, adjust to 01 the data of page 2, address 00.

Table 7-4.

7-1-7. Adjustment Connector

Most of the measuring points for the camera section adjustment are concentrated at CN651 of the VC-129 board. Connect the oscilloscope, etc. via the measuring pin tool (J-6082-139-A). The following table lists the pin numbers and the signal names of CN651.

Pin No.	Signal Name	Pin No.	Signal Name
1	D5V	2	LANC SIG
3	ZOOM SW	4	CAM SI
5	$\overline{\text{CS EEPROM}}$	6	CAM SO
7	LI 3V	8	$\overline{\text{CAM SCK}}$
9	$\overline{\text{CS CORE}}$	10	GND
11	LANC DC	12	VIDEO GND
13	V SUB CHK	14	C OUT
15	PG CONT	16	GND
17	VIDEO OUT	18	Y OUT

Table 7-5.

7-1-8. Data Processing

For some adjustments, the DDS display and the display data of the adjusting remote commander (hexadecimal numeral) must be calculated in order to obtain the adjustment data. In this case, after converting the hexadecimal numeral to a decimals numeral once, calculate and convert the result to a hexadecimal numeral, and use it as the adjustment data. Table 7-6 is the hexadecimal-decimal calculation table.

Hexadecimal-Decimal Conversion Table

②

The lower digits of the hexadecimal The upper digits of the hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) contains the display of the adjusting remote commander.

(Example) When the DDS display or the display of adjusting remote commander is BD (b d).
As the upper digit of the hexadecimal numeral is B(b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the decimal numeral to be calculated.

Table 7-6.

7-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjusting points when replacing main parts

When replacing the CCD imager or lens block, adjust the items indicated by ○ in the following table.

	When CCD imager is replaced	When lens block is replaced
V SUB adjustment	○	
V RG adjustment	○	
HALL adjustment		○
CCD imager correction data writing	○	
Flange back adjustment	○	○
IRIS IN/OUT adjustment	○	○
MAX GAIN adjustment	○	
Pre-white balance adjustment	○	
Auto white balance balance reference data input	○	
Auto white balance adjustment	○	
Color reproductivity adjustment	○	
Linear matrix adjustment	○	

2. Power supply voltage check (DD-54 board)

Subject	Arbitrary
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ⑤ and ⑥ of CN352
Specified value	4.90 ± 0.15 Vdc
D4V check	
Measurement point	Pin ③ of CN352
Specified value	3.95 ± 0.15 Vdc
CAM 5V check	
Measurement point	Pin ① of CN352
Specified value	4.85 ± 0.15 Vdc
15V check	
Measurement point	Pin ④ of CN352
Specified value	15.0 ± 0.4 Vdc
–8.5V check	
Measurement point	Pin ② of CN352
Specified value	–8.5 ± 0.5 Vdc

Checking Method:

1) Check that each power supply voltage satisfies the specified value.
If not, refer to "Video circuit, Power supply block adjustment".

3. Page F data initialization

Note: If the page F data has been initialized, all adjustments of the camera section must be carried out again.

Initializing method:

Order	Page	Address	Data	Procedure	Conditions
1				Turn off/on the main power supply (6.3V)	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	01	2D	Press the PAUSE button. (Initializing the page F data. The data of addresses 01 to EF of page F will be initialized.)	
4	6	11		Check that the data is 01. (Display of data initialized.)	

Note: Initialize page F only when the nonvolatile memory (VC-129 board IC651 EEPROM) has been replaced.

Processing after initializing

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing of initialization mode)	
2				After "Page F Data Modifications", carry out all adjustments of the camera section.	

Related Adjustments:
All camera adjustments of the camera section excluding "28 MHz origin oscillation adjustment".

4. Page F data modification

Some parts of the data (initial data) automatically written on page F by the initialization of the page F data will differ according to the version of the camera micro processor. Change the data manually, and arrange it.

Modification method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	F	01 (NT PAL)	01	Set each data to each address, and press the PAUSE button.	
		05 (CORE Y GAIN)	3C		
		0C (LOWLIGHT START)	6A		
		16 (CORE BURST LEVEL)	38		
		17 (CORE CHROMA DLY)	28		
		18 (CORE Y SETUP)	02		
		19 (CORE VHAPCN)	05		
		67 (DELAY TIME)	0C		
		71 (AE REFH)	1B		
		77 (AE FUNCTION)	02		
		79 (JITEISU DOWN)	28		
		7A (JITEISU UP)	0D		
		9E (OFF FC)	2C		
		A7 (ZM SPEED 76)	64		
		B7 (AF8)	23		
		CE (LINEAR 8)	3C		
		CF (LINEAR 9)	07		

Remarks: The versions of the camera micro processor (VC-129 board IC653) and the AF micro processor (LD-63 board IC751) can be distinguished using the following table.

- **Camera Micro processor**

Page	Address	Data	
6	10	11	Version 1
		12	Version 2
		13	Version 3

- **AF Micro processor**

Page	Address	Data	
6	20	11	Version 1
		12	Version 2
		13	Version 3
		14	Version 4

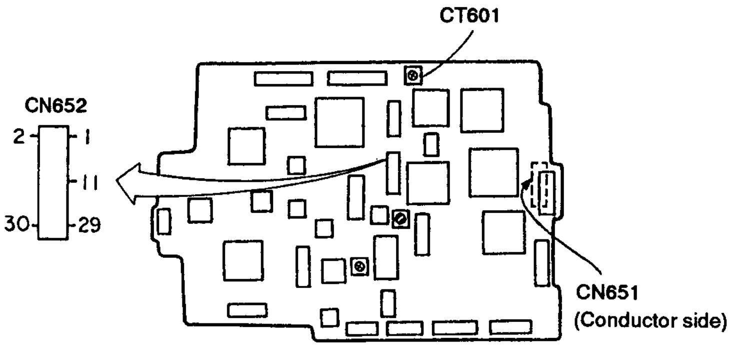
Note: Check that camera micro processor version 3 and AF micro processor version 4 have been provided as micro processors for correction.

5. 28 MHz origin oscillation adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑪ of CN652 (CL)
Measuring Instrument	Frequency counter
Adjusting Element	CT601
Specified Value	14187500 ± 71 Hz

Adjusting method:

Order	Adjusting element	Procedure	Conditions
1	CT601	Adjust the oscillation frequency to the	


CT601
CN652
2
1
11
30
29
CN651
(Conductor side)

VC-129 Board (Component Side)

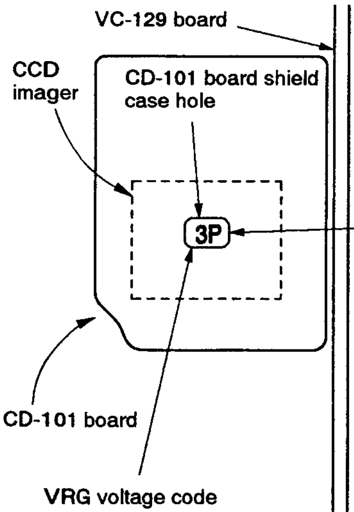
Fig. 7-7.

6. V SUB adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑬ of CN651 (V SUB CHK)
Measuring Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	06 (V SUB)
Specified Value	(Imager displayed voltage) ± 0.1 Vdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	06		Change the data with the PLAY and STOP buttons, and adjust the voltage of Pin ⑬ of CN651 to the specified value.	
3	F	06		Press the PAUSE button.	



(Example)
When the display is 3P:
VRG voltage specified value=2.0 ± 0.1 Vdc
VSUB voltage specified value=13.5 ± 0.1 Vdc.

VSUB voltage code

Code	Voltage (Vdc)
E	9.0
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

VRG voltage code

Code	Voltage (Vdc)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

Fig. 7-8.

Related Adjustments:
"MAX GAIN adjustment", "Pre-white balance adjustment", "Auto white balance data input", "Auto white balance adjustment", "Color reproductivity adjustment", "Linear matrix adjustment".

7. VRG adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑮ of CN651 (PG CONT)
Measuring Instrument	Digital Voltmeter
Adjustment Page	F
Adjustment Address	07 (VRG)
Specified Value	(Imager displayed voltage) ± 0.1 Vdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	07		Change the data with the PLAY and STOP buttons, and adjust the voltage of Pin ⑮ of CN651 to the specified value.	
3	F	07		Press the PAUSE button.	

8. CCD imager correction data writing

Subject	Not required
Adjustment Page	F
Adjustment Address	1F to 2E (CCD-DEFECT)

Write the CCD imager correction data in the following cases.

1. When the CCD imager has been replaced
2. When the camera EEPROM (VC-129 board IC651) has been replaced
3. When the page F data has been initialized

In the case of 1, as the CCD imager for repair does not require the correction data, adjust the data of addresses 1D to 2C of page F and those of addresses E0 to EF of page D to “00”.

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	F	1F~2E		Set data 00 to each address, and press the PAUSE button.	
3	**1**	**00**	**01**	Releasing of page D protect.	
4	D	E0~EF		Set data 00 to each address, and press the PAUSE button. (Writing the backup data)	

In the case of 2 and 3, read the CCD imager correction data written on addresses E0 to EF in page D and write them in addresses 1F to 2E.

Writing method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of page F protect.**	
2	D	E0~EF		Read the CCD imager correction data.	
3	F	1F 20 21 ⋮ 2E		Set the data of address E0 of page D, and press the PAUSE button. Set the data of address E1 of page D, and press the PAUSE button. Set the data of address E2 of page D, and press the PAUSE button. ⋮ Set the data of address EF of page D, and press the PAUSE button.	

9. HALL adjustment

Subject	Not required
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	0A (HALL GAIN) 0B (HALL OFFSET)
Specified Value	33 to 37 during IRIS OPEN B8 to BC during IRIS CLOSE

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	02	03	Set the HALL DATA display mode.	
3	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
4	F	0B	80	Press the PAUSE button. (HALL OFFSET data initial setting)	
5	F	0A	40	Read the DDS display data (Note 1) and take it as W2.	IRIS CLOSE mode
6	F	0A	30	Read the DDS display data and take it as W1.	IRIS CLOSE mode
7	6	01	01	Press the PAUSE button. (Setting the IRIS OPEN mode)	
8	F	0A	30	Read the DDS display data and take it as K1.	IRIS OPEN mode
9	F	0A	40	Read the DDS display data and take it as K2.	IRIS OPEN mode
10				Convert W1, W2, K1, K2 to decimal numerals, and obtain W1', W2', K1', K2'. (Refer to Table 7-7. "Hexadecimal-Decimal Conversion Table")	
11				Calculate X1' using the following equations (Decimal calculation). $A'=W2'+K1'-W1'-K2'$ ·········· Equation 1 $B'=W1'-K1'$ ···················· Equation 2 $X1'=\frac{2128+(48\times A')-(16\times B')}{A}$ ······ Equation 3	
12				Convert X1' to a hexadecimal numeral, and obtain X1. (Round off to a whole number)	
13	F	0A		Set the data to X1 (obtained at step 12).	
14	F	0A		Press the PAUSE button.	
15	F	0B		Change the data with the PLAY and STOP buttons, and adjust the DDS display data to 35.	IRIS OPEN mode
16	F	0B		Press the PAUSE button.	
17	6	01	03	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
18				If the DDS display data is B8 to BC, it indicates the end of adjustments. Perform "Processing after Adjustments". If not, carry out step 19 onwards with the DDS display data as W0.	IRIS CLOSE mode

Note 1: Lower 2 digits of the data displayed at the bottom right of the EVF or TV monitor.

Order	Page	Address	Data	Procedure	Conditions
19				Convert W0 to a decimal numeral, and obtain W0′.	
20				Calculate X2′ using the following equations (decimal numeral calculation). $C' = W0' - B' - 53$ ···················· Equation 4 $X2' = \frac{(133 - B') \times (X1' - 48) + 48 \times C'}{C'}$ ···· Equation 5 (X1′ and B′ are values obtained from equations 2 and 3 at step 11)	
21				Convert X2′ to a hexadecimal numeral, and obtain X2. (Round off to a whole number)	
22	F	0A		Set the data to X2 (obtained at step 21).	
23	F	0A		Press the PAUSE button.	
24	F	0B		Change the data with the PLAY and STOP buttons, and adjust the DDS display data to BA.	IRIS CLOSE mode
25	F	0B		Press the PAUSE button.	
26	6	01	01	Press the PAUSE button. (Setting the IRIS OPEN mode)	
27				Check that the DDS display data is 33 to 37.	IRIS OPEN mode

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00	Releasing of HALL DATA display mode.	
2	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE/OPEN mode)	

Related Adjustments:
“IRIS IN/OUT adjustment”.

10. Flange back adjustment

Subject	Chart for flange back adjustment Placed 2000 ± 5 mm in front of the lens Illuminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	9D (OFF FC), 9E (OFF FC), 9F (LENS WIDE), A0 (LENS WIDE), A1 (LENS TELE), A2 (LENS TELE), A9 (Z PHASE)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	9D	00	Set the initial data, and press the PAUSE button.	
		9E	2C		
		9F	00		
		A0	01		
		A1	E0		
		A2	02		
		A9	08		
3				Check that the center of the flange back adjustment chart coincides with that of the exposure display at both the zoom lens TELE end and the WIDE end.	
4	6	21		Check that the data is 00. (Flange back adjustable display)	
5	6	01	13	Press the PAUSE button.	
6	6	01	15	Press the PAUSE button. (This enables adjustments to be carried out automatically. Adjustments are performed at the zoom lens TELE end first, and then at the WIDE end. The adjustment data is automatically input to page: F, addresses: 9D to A2, A9.)	
7	6	21		Check that the data is 01. (Display indicating that flange back adjustment has completed.)	

Processing after Adjustments:

Order	Procedure
1	Turn on the main power supply (6.3V). (Out of focus if this is not carried out.)

11. Flange back check

Subject	Siemens star (Placed 2m in front of the lens)
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Specified Value	X–Y= ± 0123

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Place the Siemens star 2m in front of the lens.	
2				Open the auto lock cover.	
3				Set the “Exposure” to “Manual”, rotate the “Exposure” adjusting dial to + so that the IRIS opens.	
4				Adjust the luminance intensity for the Siemens star so that the optimum image is obtained.	
5				Expose the Siemens star at the TELE end.	
6				Press the “Focus” button, and turn on the auto focus.	
7	6	02	0C	Check that the DDS display is 00 0001. (Focusing check)	Auto focus on
8				Press the “Focus” button and turn off the auto focus.	
9				Expose the Siemens star at the WIDE end.	
10	**6**	**00**	**01**	**Releasing of protect.**	
11	6	02	00		
12	F	02	B8	Press the PAUSE button. (Setting the focus position display mode)	
13				Read the DDS display data and take it as X. (Example) DDS display...63 4500 X=6345	Zoom WIDE end Auto focus off
14				Press the “Focus” button, and turn on the auto focus.	
15	6	02	0C	Check that the DDS display is 00 0001. (Focusing check)	Auto focus on
16	6	02	00	Read the DDS display (focus position display) data and take it as Y. (Example) DDS display...63 5B00 Y=635B	Zoom WIDE end Auto focus on Focusing condition
17				Check that X–Y= ± 0123. (X′–Y′= ± 291 when converted to a decimal numeral)	

Processing after Checking:

Order	Page	Address	Data	Procedure
1	F	02	00	Press the PAUSE button. (Releasing the focus position display mode)

12. SYNC level adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑱ of CN651 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	08 (VREF-Y)
Specified Value	A=150 ± 5 mV

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	01	05	Press the PAUSE button. (Setting the IRIS CLOSE mode)	
3	F	08		Change the data with the PLAY and STOP buttons, and adjust the SYNC level to the specified value.	IRIS CLOSE mode
4	F	08		Press the PAUSE button.	

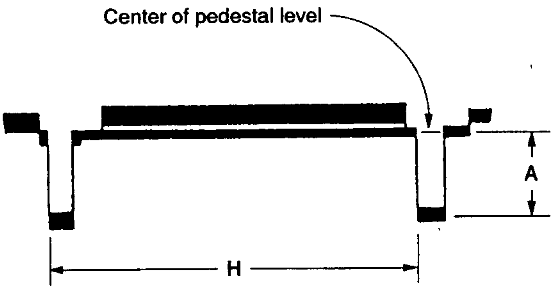


Fig. 7-9.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

13. Burst level adjustment (VC-129 board)

Subject	Not required
Measurement Point	Pin ⑭ of CN651 (CAM C)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	09 (VREF-C)
Specified Value	A=150 ± 5 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	01	05	Press the PAUSE button (Setting the IRIS CLOSE mode)	
3	F	09		Change the data with the PLAY and STOP buttons, and adjust the burst level to the specified value.	IRIS CLOSE mode
4	F	09		Press the PAUSE button.	

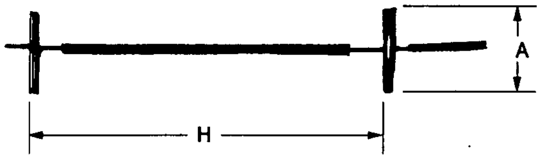


Fig. 7-10.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the IRIS CLOSE mode)	

Related Adjustments:
"Color reproductivity adjustment".

14. Picture frame setting

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A=B, C=D, t=0 ± 0.1 msec.

Setting method:

Order	Procedure
1	Turn off the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust the direction of the zoom and camera, and set at the specified position.
4	Mark the position of the picture frame on the monitor display, and adjust it to this position if the "color bar chart standard picture frame" or "white pattern standard picture frame" is used in the following adjustments.

Checking on the TV monitor (Under scan mode)

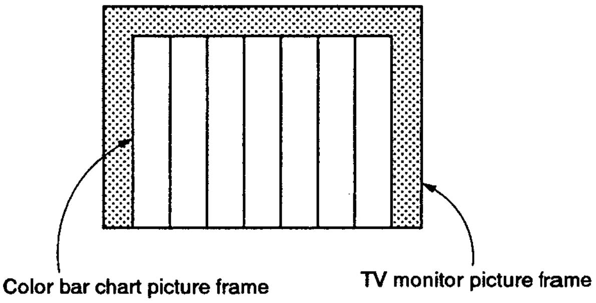

Color bar chart picture frame
TV monitor picture frame

Fig. 7-12.

Checking with the oscilloscope

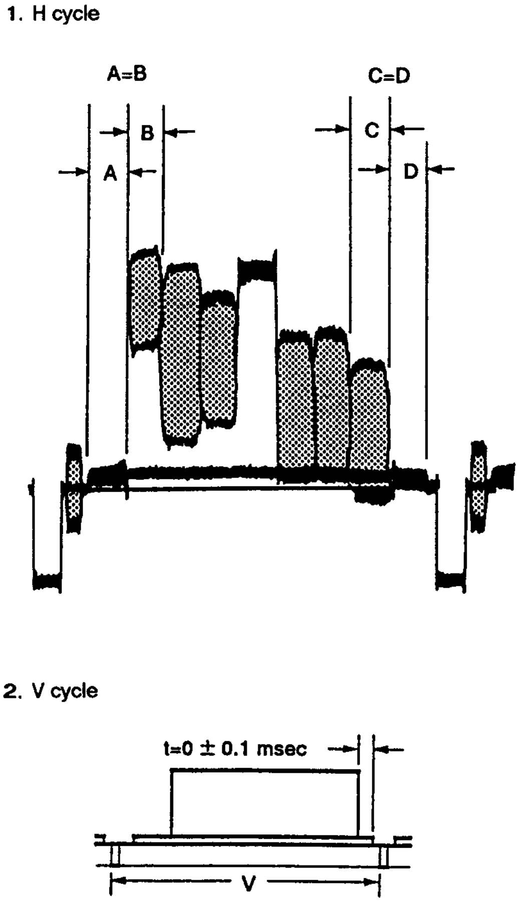

1. H cycle
A=B
C=D
B
A
C
D
2. V cycle
t=0 ± 0.1 msec
V

Fig. 7-11.

15. IRIS IN/OUT adjustment

Subject	White pattern standard picture frame
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	44 (IRIS IN) 45 (IRIS OUT)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	02	03	Setting of HALL DATA display mode.	
3	6	01	0B	Press the PAUSE button. (Setting the ND 0.8 shutter mode)	
4				Read the lower 2 digits of the DDS display data, and take it as D44.	ND 0.8 shutter mode
5	F	44		Adjust the data to D44 (obtained at step 4) with the PLAY and STOP buttons.	
6	F	44		Press the PAUSE button.	
7	6	01	09	Press the PAUSE button. (Setting the ND 0.5 shutter mode)	
8				Read the lower 2 digits of the DDS display data, and take it as D45.	ND 0.5 shutter mode
9	F	45		Adjust the data to D45 (obtained at step 8) with the PLAY and STOP buttons.	
10	F	45		Press the PAUSE button.	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	02	00	Releasing of HALL DATA display mode.	
2	6	01	00	Press the PAUSE button. (Releasing the ND 0.5 shutter mode.)	

16. Max gain adjustment (VC-129 board)

Subject	White pattern standard picture frame
Measurement Point	Pin ⑱ of CN651 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	73 (AE MIN L)
Specified Value	A=260 ± 10 mV

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	01	19	Press the PAUSE button. (Max gain adjustment mode)	
3	F	73		Change the data with the PLAY and STOP buttons, and adjust the CAM Y signal level (A) to the specified value.	MAX GAIN adjustment mode
4	F	73		Press the PAUSE button.	

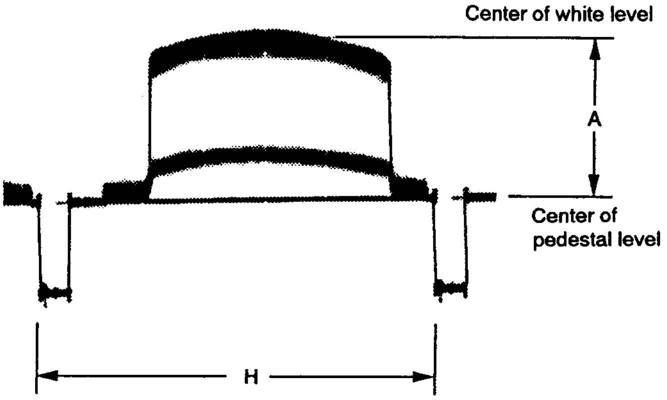


Fig. 7-13.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the max gain adjustment mode)	

17. Pre-white balance adjustment

Subject	White pattern standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	3E (R CONT REF), 3F (B CONT REF)
Specified Value	The center of the white luminance point should be within the circle with a 1 mm diameter which centers around the origin.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	1A	00	Press the PAUSE button.	
3	F	1B	00	Press the PAUSE button.	
4	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
5	F	3E 3F		Change the data alternately, and coincide the white luminance point with the origin. Before changing the address, press the PAUSE button.	WB 3200K preset mode
6	F	1A	FA	Press the PAUSE button.	
7	F	1B	F1	Press the PAUSE button.	

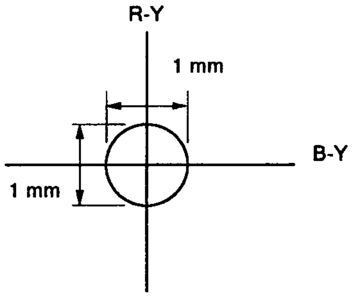


Fig. 7-14.

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the WB3200K preset mode.)	

Related Adjustments:
"White balance reference data input", "Auto white balance adjustment", "Color reproductivity adjustment".

18. Auto white balance reference data input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	38 (R3200H), 39 (R3200L), 3A (B3200H), 3B (B3200L), 3C (G3200H), 3D (G3200L)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Turn off/on the main power supply (6.3V).	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	11		Check that the data is 00. (Display indicating that auto white balance reference data can be input)	
4	6	01	11	Press the PAUSE button. (Auto white balance reference data input preparation mode)	
5	6	01	0D	Press the PAUSE button. (The auto white balance reference data input will be executed and the data input automatically to addresses 38 to 3D of page F.)	
6	6	11		Check that the data is 01. (Display indicating that the auto white balance reference data input completed)	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the auto white balance reference data input mode)	
2				Perform "Auto White Balance Adjustment".	

Related Adjustments:
"Auto White Balance Adjustment".

19. Auto white balance adjustment

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	40 (NORM R), 41 (NORM B)
Specified Value	R ratio 2A80 ± 40 B ratio 6080 ± 40

Note: Perform this adjustment after "Auto White Balance Reference Data Input".

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	F	6B	D0	Press the PAUSE button. (Setting the auto white balance adjustment mode)	
3	6	02	04	Setting of R ratio display mode.	R ratio display mode
4	F	40		Change the data with the PLAY and STOP buttons, and adjust the R ratio data of the DDS display to the specified value.	
5	6	02	05	Setting of B ratio display mode.	B ratio display mode
6	F	41		Change the data with the PLAY and STOP buttons, and adjust the B ratio data of the DDS display to the specified value.	
7	F	41		Press the PAUSE button.	

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	6B	00	Press the PAUSE button. (Releasing the auto white balance adjustment mode)	
2	6	02	00	Releasing of B ratio display mode.	

20. White balance check

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filters 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 7-15. A to C

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the lens is not covered with either filter.	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
4				Check that the white luminance point is within the circle shown in Fig. 7-15. A. (Setting the indoor white balance mode)	WB 3200K preset mode, no filter
5	6	01	00	Press the PAUSE button. (Releasing WB 3200K preset mode)	
6	F	67	01	Press the PAUSE button. (Setting the auto white balance high speed tracking mode)	
7				Check that the white luminance point is within the circle shown in Fig. 7-15. A.	Auto white balance high speed tracking mode, no filter
8				Place the C14 filter on the lens.	
9				Check that the white luminance point is within the circle shown in Fig. 7-15. B. (Checking the auto white balance outdoor mode)	Auto white balance high speed tracking mode, C14 filter
10				Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) over the lens.	
19				Check that the white luminance point is within the circle shown in Fig. 7-15. C. (Checking the auto white balance outdoor mode)	Auto white balance high speed tracking mode, ND filter 1.3

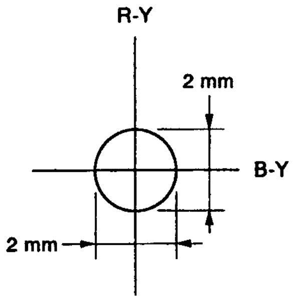


Fig. 7-15. A

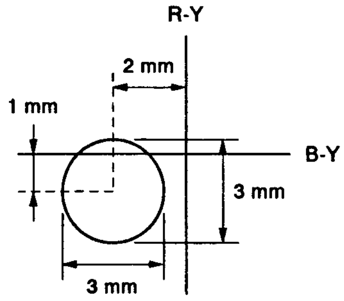


Fig. 7-15. B

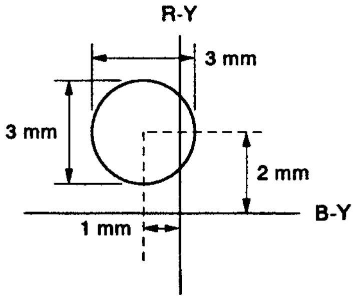


Fig. 7-15. C

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	67	0C	Press the PAUSE button. (Releasing the auto white balance high speed tracking mode)	

21. Color reproductivity adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	1A (CORE R–Y HUE) 1B (CORE B–Y HUE) 1C (CORE B–Y GAIN), 1D (CORE R–Y GAIN)
Specified Value	Each color luminance point should be within each color reproduction frame.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**6**	**00**	**01**	**Releasing of protect.**	
2	6	03	00	Setting of weighting off mode.	
3	6	01	0F	Press the PAUSE button. (Setting the WB 3200K preset mode)	
4	F	1A 1B 1C 1D		Change the data, and adjust so that each color luminance point is within each color reproduction frame. Press the PAUSE button for each address.	Weighting off mode WB 3200K preset mode

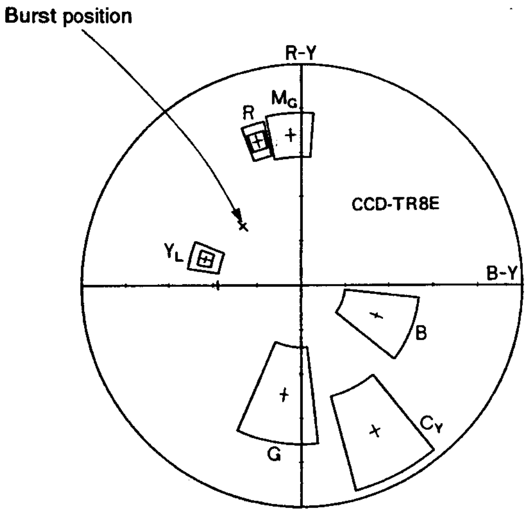


Fig. 7-16.

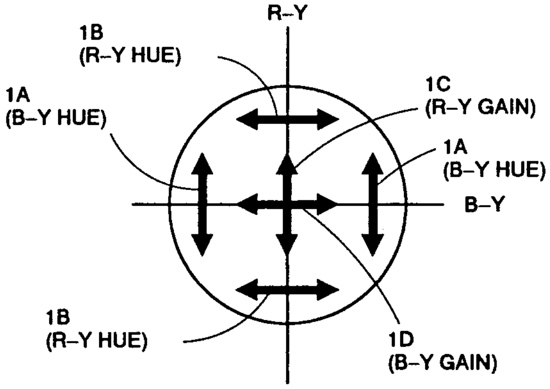


Fig. 7-17. Direction of the Movements of Adjustment Addresses and Luminance Points

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	6	01	00	Press the PAUSE button. (Releasing the WB 3200K preset mode)	
2	6	03	10	Set the normal mode (weighting on mode).	

Related Adjustments:
"Linear matrix adjustment".

22. Linear matrix adjustment

Subject	Color bar standard picture frame
Measurement Point	Filter C14 for color temperature correction
Measuring Instrument	DDS display on the EVF or TV monitor
Adjustment Page	
Adjustment Address	F
Specified Value	48 (DMAT HUE), 49 (DMAT GAIN)

Note: Before beginning adjustments, check that the color bar chart picture frame is at the position set in "14. Picture frame setting".

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Remove the filter C14 for color temperature correction.	
2	**6**	**00**	**01**	**Releasing of protect.**	
3	6	03	00	Setting of weighting off mode.	
4	6	02	02	Setting of color difference data display mode.	
5	F	16	3A	Press the PAUSE button. (Setting the color modulation stop mode)	
6	F	6B	F1	Press the PAUSE button. (Setting the auto white balance all area tracking mode)	
7	2	00	01	Selecting of page 2, category 01.	
	2	39	01	Setting of data transmission mode for SG.	
8	2	37	C9	Specifying of position of yellow.	
	2	38	B6		
9	F			Read the R–Y data (Y1) of the DDS display. (Note 1)	Specifying of position of yellow, no filter
10	2	37	59	Specifying of position of red.	
	2	38	6D		
11	F			Read the R–Y data (R1) of the DDS display. (Note 1)	Specifying of position of red, no filter
12				Cover the lens with the filter for color temperature correction. (Make sure that the picture frame of the color bar chart does not move.)	

Note 1: 2 digits of 4 digit number displayed at the bottom right of the EVF or TV monitor.

Y1, Y2, R1, and R2 are all above 80.

(Example) $00\ \ \underbrace{6A}_{\text{B-Y data}}\ \ \underbrace{87}_{\text{R-Y data}}$

As the R–Y data and B–Y data are displayed altematively,it will be difficult to distinguish between the R–Y data and the B–Y data.

Record this data on a tape, and perform frame advancing playback so that only the R–Y data or the B–Y data is read.

(Example)

If the frame advancing playback is performed, the following will be displayed.

$63\underline{88} \rightarrow \underline{8B}61 \rightarrow 61\underline{8B} \rightarrow \underline{8A}63 \rightarrow$

$65\underline{89} \rightarrow \underline{8B}60 \rightarrow 60\underline{8A} \rightarrow \underline{89}63$

As the R–Y data is above 80, and the B–Y data is below 7F, the data which is underlined is the R–Y data.

If the average value is calculated, the R–Y data will become 8A and the B–Y data will becames 62.

<table>
<tr><th>Order</th><th>Page</th><th>Address</th><th>Data</th><th>Procedure</th><th>Conditions</th></tr>
<tr><td>13</td><td>F</td><td></td><td></td><td>Read the R–Y data (R2) of the DDS display. (Note 1)</td><td>Specifying of position of red, C14 filter</td></tr>
<tr><td rowspan="2">14</td><td>2</td><td>37</td><td>C9</td><td rowspan="2">Specifying of position of yellow.</td><td rowspan="2"></td></tr>
<tr><td>2</td><td>38</td><td>B6</td></tr>
<tr><td>15</td><td>F</td><td></td><td></td><td>Read the R–Y data (Y2) of the DDS display. (Note 1)</td><td>Specifying of position of yellow, C14 filter</td></tr>
<tr><td>16</td><td></td><td></td><td></td><td>Convert Y1, Y2, R1, R2 to decimal numerals to obtain Y1′, Y2′, R1′ and R2′.
(Refer to Table 7-7 "Hexadecimal-Decimal Conversion Table")</td><td></td></tr>
<tr><td>17</td><td></td><td></td><td></td><td>Calculate X1′ from the following equations (decimal numeral calculation).
$X1'=Y2'-Y1'$</td><td></td></tr>
<tr><td>18</td><td></td><td></td><td></td><td>Calculate D48 from the following table.
(D48 is a hexadecimal numeral)
<table>
<tr><th>X_1' value</th><th>D_{48}</th></tr>
<tr><td>$-1 \leqq X_1' \leqq 1$</td><td>0F</td></tr>
<tr><td>$X_1'>1$</td><td>1F</td></tr>
<tr><td>$X_1'<-1$</td><td>FF</td></tr>
</table></td><td></td></tr>
<tr><td>19</td><td>F</td><td>48</td><td></td><td>Adjust the data to D48 (obtained at step 18) with the PLAY and STOP buttons.</td><td></td></tr>
<tr><td>20</td><td>F</td><td>48</td><td></td><td>Press the PAUSE button.</td><td></td></tr>
<tr><td>21</td><td></td><td></td><td></td><td>Calculate X2′ from the following equations (decimal numeral calculation).
$X2'=R2'-R1'$</td><td></td></tr>
<tr><td>22</td><td></td><td></td><td></td><td>Calculate D49 from the following table.
<table>
<tr><th>X_2' value</th><th>D_{49}</th></tr>
<tr><td>$X_2' \geqq 0$</td><td>00</td></tr>
<tr><td>$0>X_2' \geqq -1$</td><td>01</td></tr>
<tr><td>$-1>X_2'$</td><td>02</td></tr>
</table></td><td></td></tr>
<tr><td>23</td><td>F</td><td>49</td><td></td><td>Adjust the data to D49 (obtained at step 22) with the PLAY and STOP buttons.</td><td></td></tr>
<tr><td>24</td><td>F</td><td>49</td><td></td><td>Press the PAUSE button.</td><td></td></tr>
</table>

Processing after Adjustments:

Order	Page	Address	Data	Procedure	Conditions
1	F	6B	00	Press the PAUSE button. (Releasing the auto white balance all area tracking mode)	
2	F	16	38	Press the PAUSE button. (Releasing the color modulation stop mode)	
3	6	02	00	Releasing of color difference data display mode.	
4	6	03	10	Setting of normal mode (Weighting ON mode).	

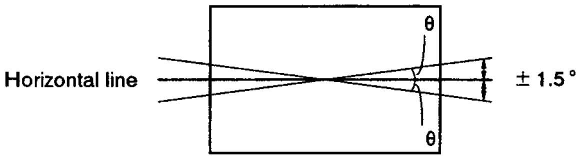
7-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

7-3-1. Horizontal Slant Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Specified Value	± 1.5°

Adjusting method:

Order	Procedure
1	Adjust RV903 (BRIGHT) so that the CRT can be seen easily and clearly.
2	Loosen the DY (deflection yoke) tightening screw.
3	Rotate DY, and adjust the image so that it is horizontal.
4	Tighten the DY tightening screw. (Do not tighten it too tightly.)



Specified value: The image should be within ± 1.5° of the horizontal line.

Fig. 7-18.

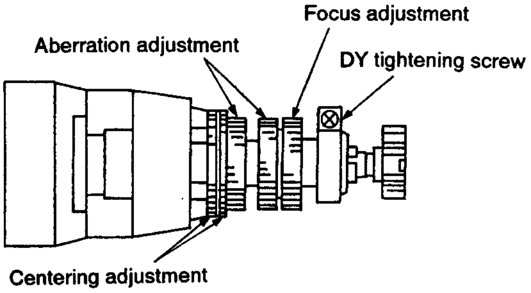


Fig. 7-19.

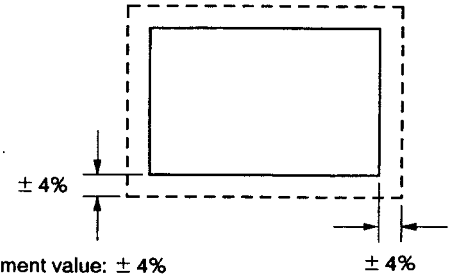
7-3-2. Centering Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Specified Value	± 4%

Adjusting method:

Order	Procedure
1	Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform.

Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value: ± 4%

Fig. 7-20.

7-3-3. Focus Adjustment

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section

Adjusting method:

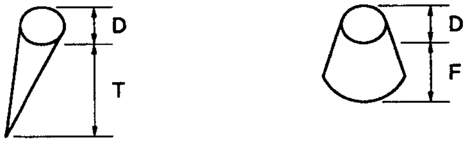
Order	Procedure
1	Adjust the focus ring to obtain the optimum focus.

7-3-4. Aberration Adjustment

Model	E-E
Signal	Dot pattern
Specified Value	T<2•D F<D

Adjusting method:

Order	Procedure
1	Adjust the aberration adjustment ring so that the tracing of the dot becomes less than twice the diameter of the dot, or the fan aberration becomes less than the diameter of the dot.
2	If the centering becomes displaced here, perform the centering adjustment from the beginning again.



T<2•D

F<D

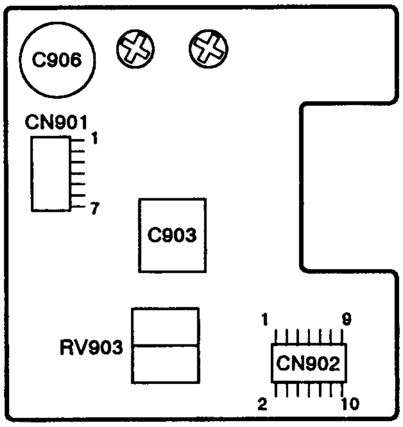
Fig. 7-21.

7-3-5. Horizontal Oscillation Frequency Adjustment (VF-55 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE)
Measurement Point	Pin ⑦ of CN901
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	RV901
Specified Value	2.30 ± 0.05 Vdc

Adjusting method:

Order	Procedure
1	Adjust to 2.30 ± 0.05 Vdc using RV901.



VF-55 board (component side)

Fig. 7-22.

7-3-6. Horizontal Amplitude Adjustment (VF-56 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	C952
Specified Value	6 ± 2%

Adjusting method:

Order	Procedure
1	Rotate RV902 on the VF-55 board, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
2	Rotate RV903 on the VF-55 board so that the brightness is the normal level.
3	Adjust the pattern (A) of the H size adjustment capacitor (C952) to "short" or "open", so that the horizontal direction over scan becomes 6 ± 2% (Left and right totals).

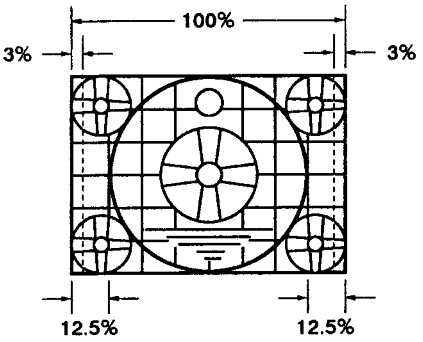
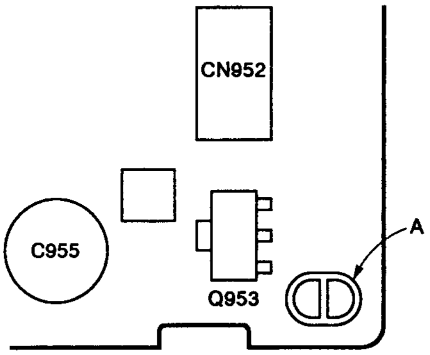


Fig. 7-23.



VF-56 board (component side)

Section A	Size H
Open	Small
Short	Big

Fig. 7-24.

7-3-7. Vertical Amplitude Adjustment (VF-55 board)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	RV902
Specified Value	3.5 ± 2%

Adjusting method:

Order	Procedure
1	Adjust RV902 so that the vertical direction over scan becomes 3.5 ± 2% (Top and bottom totals).

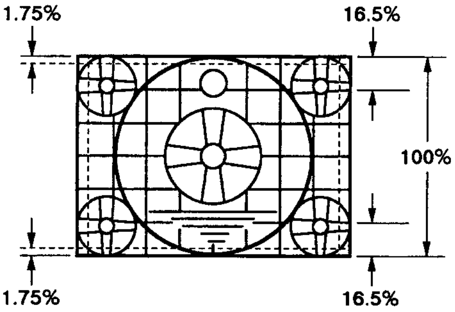


Fig. 7-25.

7-3-8. Brightness, Contrast Adjustments (VF-55, 56 boards)

Model	Playback
Signal	Alignment tape: For checking Hi8 mode operations (WR5-8CSE) Monoscope section
Adjusting Element	Brightness: RV903 on the VF-55 board Contrast: RV951 on the VF-56 board

Adjusting method:

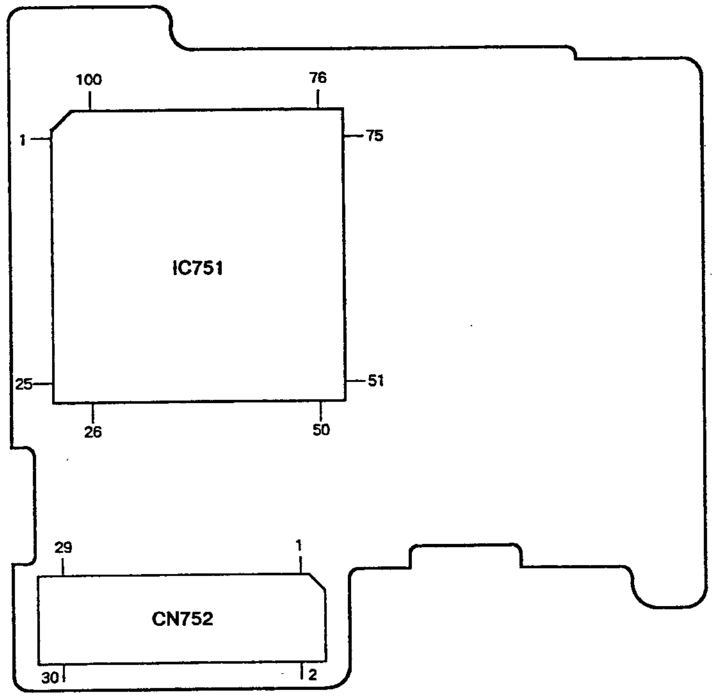
Order	Procedure
1	Rotate RV903 and RV951 alternately, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should not be so bright that the cross hatch in the monoscope circle appears vague. The dark section should not be so dark that the darkest section and the second darkest section of the gray scale cannot be differentiated.)

7-3-9. Horizontal Amplitude, Vertical Amplitude, Focus Check

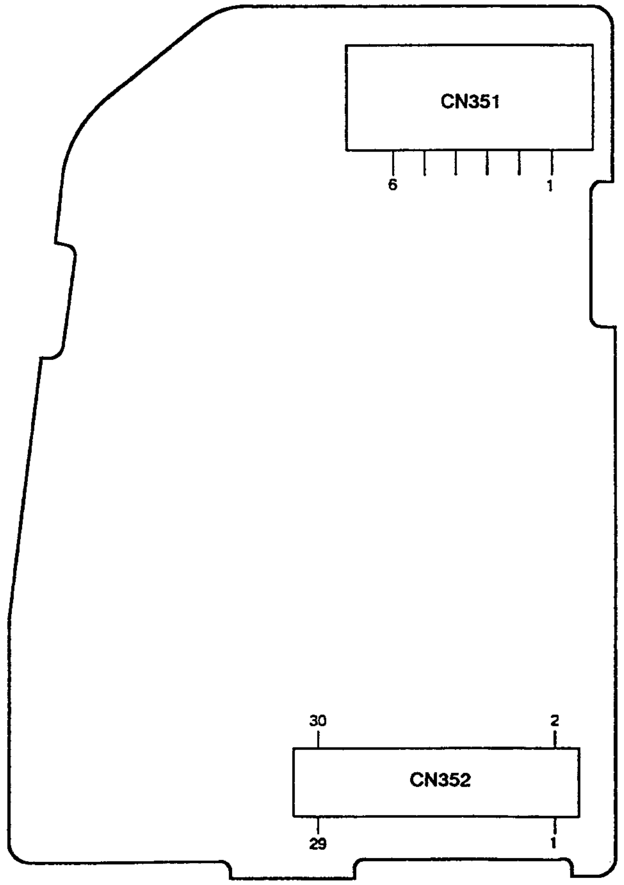
"7-3-6. Horizontal Amplitude Adjustment" and "7-3-7. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform "7-3-8. Brightness, Contrast Adjustments" again. Moreover, check the focus, and if it found to be vague, perform "7-3-3. Focus Adjustment" and "7-3-4. Aberration Adjustment".

7-4. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

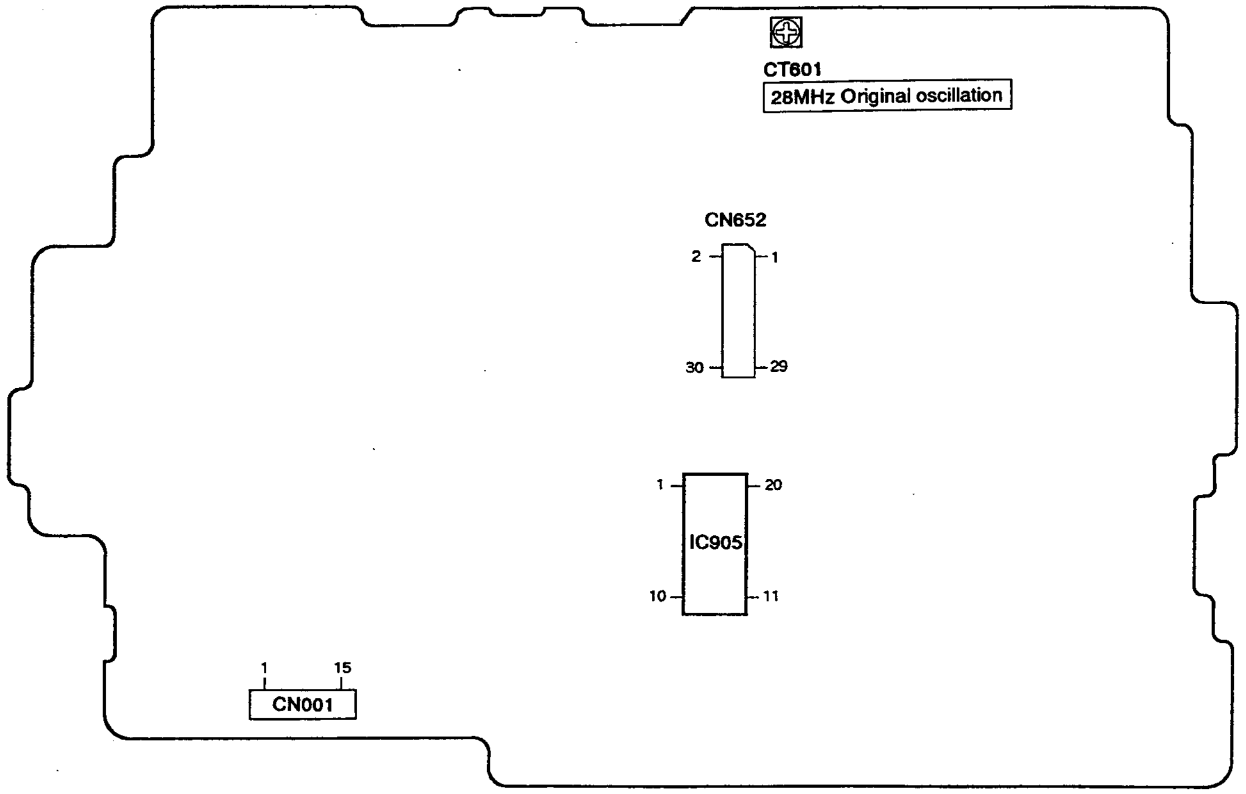
LD-63 BOARD (CONDUCTOR SIDE)


100
76
1
75
IC751
25
51
26
50
29
1
CN752
30
2

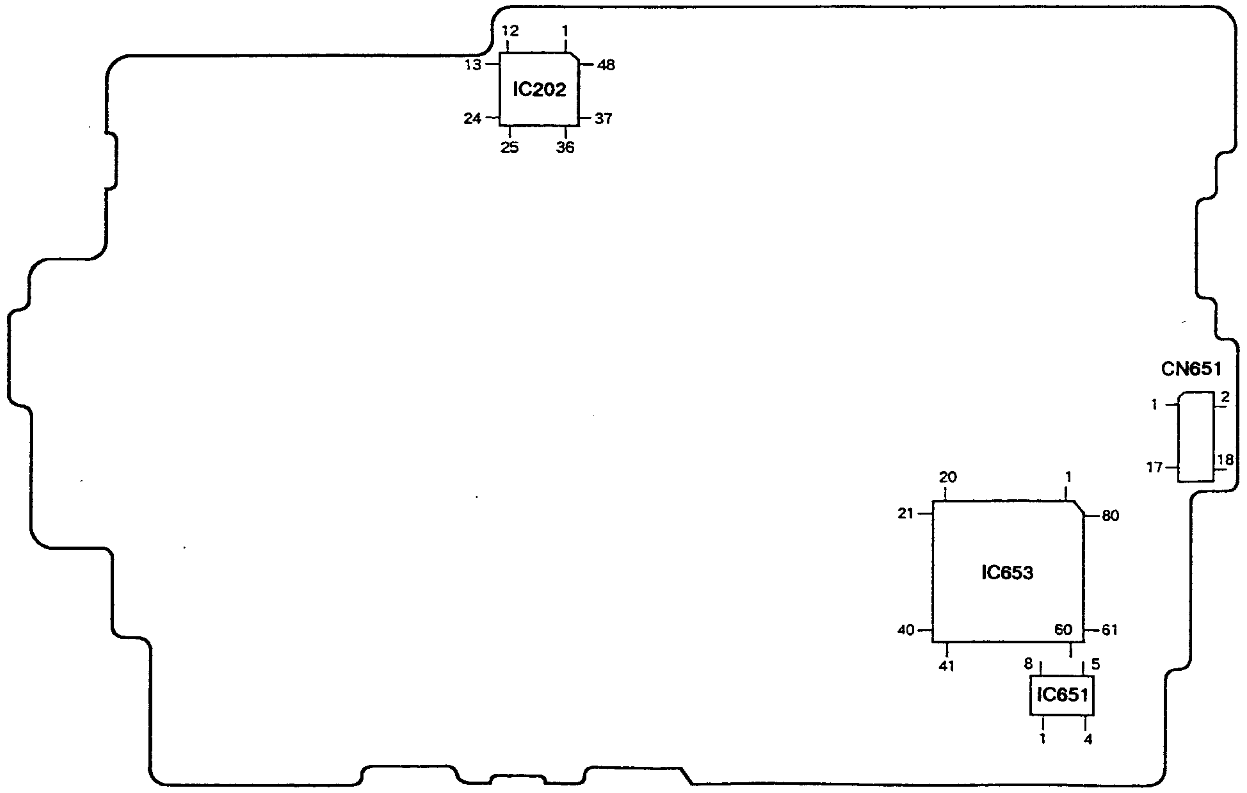
DD-54 BOARD (COMPONENT SIDE)


CN351
6
1
30
2
CN352
29
1

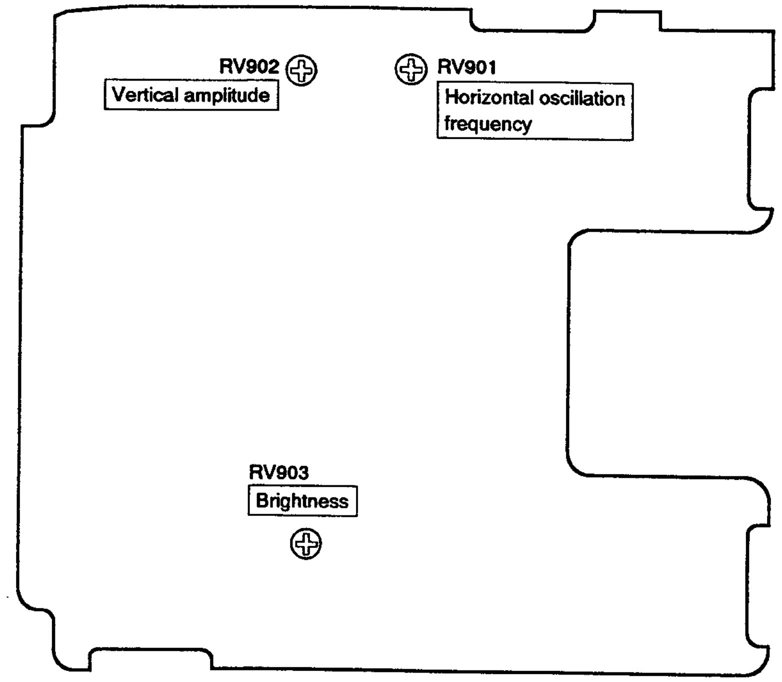
VC-129 BOARD (COMPONENT SIDE) A SIDE


CT601
28MHz Original oscillation
CN652
2
1
30
29
1
20
IC905
10
11
1
15
CN001

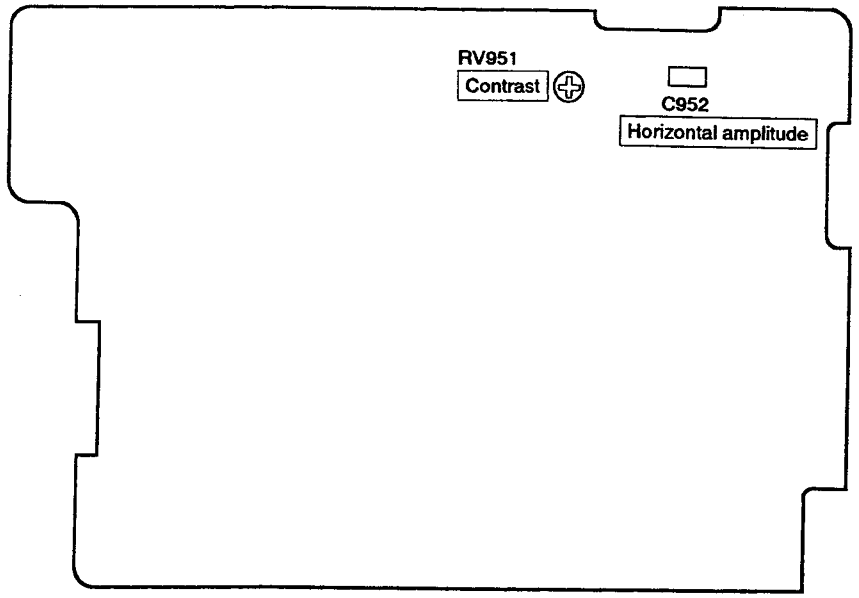
VC-129 BOARD (CONDUCTOR SIDE) B SIDE


12
1
13
48
IC202
24
37
25
36
CN651
1
2
17
18
20
1
21
80
IC653
40
60
61
41
8
5
IC651
1
4

VF-55 BOARD (COMPONENT SIDE)


RV902
Vertical amplitude
RV901
Horizontal oscillation frequency
RV903
Brightness

VF-56 BOARD (CONDUCTOR SIDE)


RV951
Contrast
C952
Horizontal amplitude

SECTION 8
MECHANISM SECTION ADJUSTMENTS

Mechanism Parts Adjustments

For details on the adjustments and checks of the mechanical section, and replacements of mechanism parts, refer to the separate volume-"8 mm Video Mechanism Section Adjustment Manual II FL Mechanism (Q Mechanism)".

8-1. OPERATING WITH THE CASSETTE COMPARTMENT HOLDER ASSEMBLY REMOVED (Refer to Fig. 8-1.)

1. Loading

1) Refer to ""1. Disassembly", and turn on the power with the cabinet removed (However, leave the cabinet (R) connected so that the adjusting remote commander can be connected.). (So that the mechanism deck section can be operated.)
2) Connect the adjusting remote commander, and turn on the HOLD switch.
3) Select page: 1, address: 00, and set data: 01. (Releasing the protect)
4) Select page: D, address: 01, and set data: 01. (Setting test mode 1)
5) Press the PAUSE button of adjusting remote commander.
6) Turn off the HOLD switch of the adjusting remote commander. (The adjusting remote commander can be disconnected after this.)
7) The unit will be set into the loading mode when the lock plate release arm ❶ is pressed into the direction of the arrow.
   (To set the unit into the recording mode, fix the push switch ❷ with adhesive tape ❸ before performing this operation.)
8) After completing all operations, be sure to perform "5. Processing after operations".

2. Setting the unit into the playback condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the playback button.

3. Setting the unit into the recording condition

1) Perform steps 1) to 7) of "1. Loading".
2) Press the recording switch of the remote control unit.
   Note: Refer to "VIDEO SECTION ADJUSTMENT" to set the recording condition.

4. Ejecting

1) Press the eject button.

5. Processing after operations

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 1, address: 00, and set data: 01.
3) Select page: D, address: 01, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Remove the power supply from the unit.

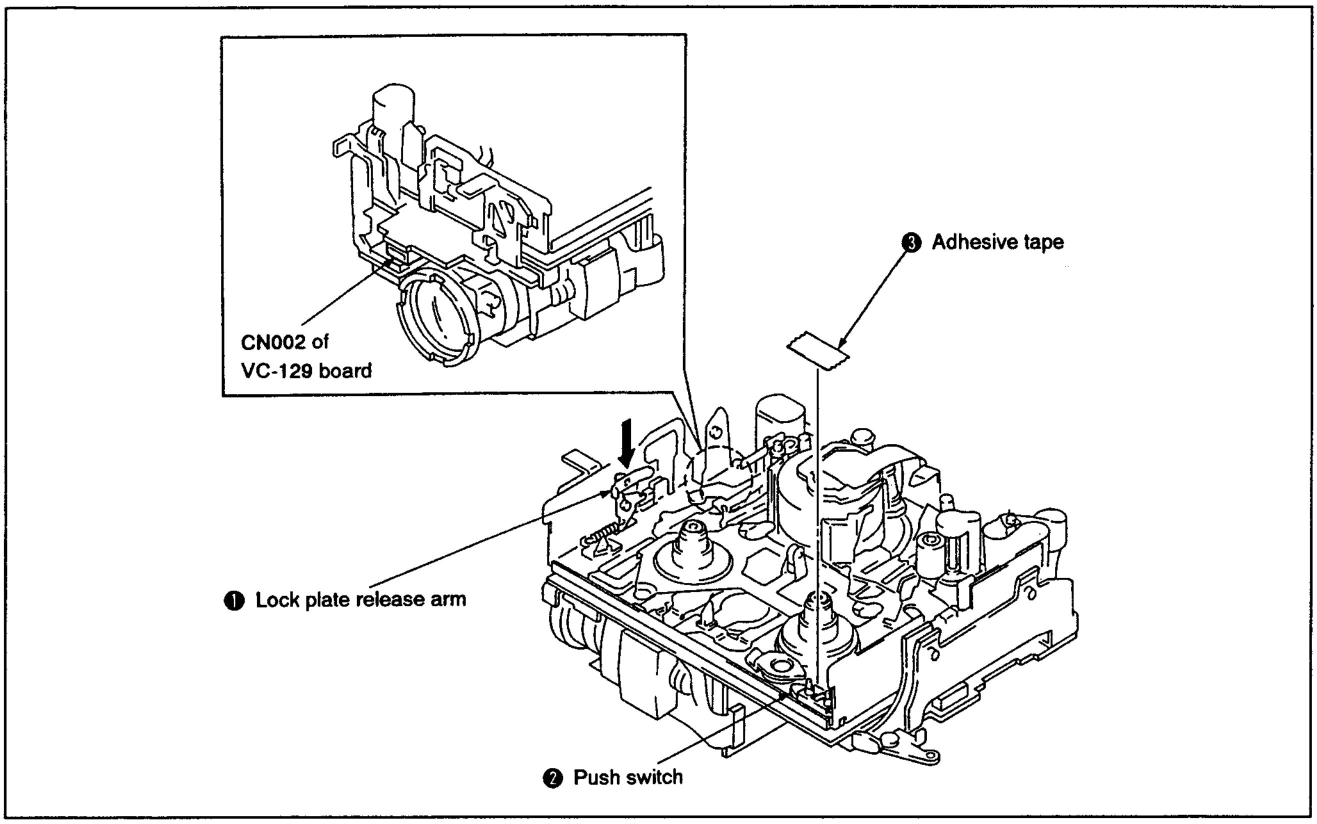

CN002 of
VC-129 board
❸ Adhesive tape
❶ Lock plate release arm
❷ Push switch

Fig. 8-1.

8-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments
1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote control terminal (JK board).
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 1, address: 00, and set data: 01.
(Releasing of the protect)
5) Select page: D, address: 01, and set data: 03.
(Setting of track shift mode. The adjusting remote commander can be disconnected if the PAUSE button of the remote commander is pressed. In this case, be sure to perform "8-1-5. Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
Channel 1-Pin ⑭ of CN002 of VC-129 board
External trigger-Pin ⑨ of CN002 of VC-129 board
(Connect the oscilloscope via the measuring pin tool for the video section (J-6082-140-A).)
7) Playback the alignment tape (WR5-1CP) for tracking.
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment II (Q Mechanism).
9) Perform "8-1-5. Processing after operations", after completing adjustments.

CN002 of VC-129 Board

1	LANC SIG
2	N.C
3	GND
4	CAP FG
5	REC 1B
6	REC 2B
7	REC 1A
8	REC 2A
9	RF SWP
10	$\overline{\text{1/2 RF SWP}}$
11	PB RF CH1
12	PB RF CH2
13	RF GND
14	PB RF OUT

SECTION 9
VIDEO SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 326.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipments are used for adjusting the video section.

9-1-1. Equipments Used

1) TV monitor
2) Oscilloscope 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tape
    - For adjusting tracking (WR5-1CP)
      Parts Code: 8-967-995-07
    - For adjusting normal mode video frequency characteristics (WR5-6C)
      Parts Code: 8-967-995-17
    - For adjusting Hi8 mode video frequency characteristics (WR5-7CE)
      Parts Code: 8-967-995-18
    - For checking normal mode operations
      For SP (WR5-5CSP)
      Parts Code: 8-967-995-47
      Or (WR5-4CSP)
      Parts Code: 8-967-995-46
      For LP (WR5-4CL)
      Parts Code: 8-967-995-56
      For checking AFM stereo operations (WR5-9CS)
      Parts code: 8-967-995-28
    - For checking Hi8 mode operations (ME tape)
      For SP (WR5-8CSE)
      Parts code: 8-967-995-48
      For LP (WR5-8CLE)
      Parts code: 8-967-995-57
12) Adjusting remote commander (J-6082-053-A)
13) Video section measuring pin tool
    Parts code: J-6082-140-A
14) JK board extension cable (17P, 0.5 mm)
    Parts code: J-6082-194-A
15) AU-146 board extension cable (28P, 0.8 mm)
    Parts code: J-6082-190-A

9-1-2. Precautions upon Adjustment

The EVF (electronic view-finder) section is not required for adjusting the video section.
Remove the following connector when removing the EVF section.

1. CN303 of VC-129 board (Pin 7)

The MA-164 board is not required for adjusting the video section. Remove the following connector when removing the MA-164 board.

1. CN802 of AU-146 board (Pin 8)

The audio board (AU-146 board) is not required other than in the "REC AFM Level Check" of "Audio System Adjustments" and "Video System Adjustments". Remove the following connectors.

1. CN304 of VC-129 board (Pin 28)
2. CN602 of AU-146 board (Pin 8)

The lens block (including CD-101 board and LD-63 board) is not required other than in "Power Supply System Adjustments". Remove the following connectors and two mounting screws, and remove it from the VC-129 board.

1. CN601 of VC-129 board
2. CN652 of VC-129 board

9-1-3. How to Set the REC Mode

1. REC key forbidden accept mode cancel
    1. Connect the adjusting remote commander to the REMOTE terminal.
    2. Turn on the power.
    3. Turn on the HOLD switch of the adjusting remote commander.
    4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
    5. Select the page: D address: 02, and set the data to 81. (REC key forbidden accept mode cancel)
    6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

The REC key is accepted through the above procedure. The adjusting remote commander may be removed, hereafter.

Note: After compleating adjustment be sure to perform "4. Procedure after completed adjustment".

2. REC mode setting (1)
    (Method using adjusting remote commander)
    1. Set the HOLD switch of the adjusting remote commander to the OFF (Normal) position.
    2. Press the REC buttons set up REC mode.
3. REC mode setting (2)
    1. Connect Pin ⑧ of CN911 (ANO 0) on VC-129 board and GND with a jumper wire until the VTR is set to REC mode.
4. Procedure after completed the adjustment
    Be sure to return the mode to REC key forbideden accept mode after adjustment.
    1. Connect the adjusting remoter commander to the REMOTE terminal.
    2. Turn on the power.
    3. Turn on the HOLD switch of the adjusting remote commander.
    4. Select the page: 1 address: 00, and set the data to 01. (Protect mode cancel)
    5. Select the page: D address: 02, and set the data to 80. (Setting of the REC key forbidden accept mode)
    6. Press PAUSE button on the adjusting remote commander. (Write to the non-volatile memory)

9-1-4. Connector for Adjustments (CN002 of VC-129 Board)

Some video section adjustment points are concentrated at CN002 of the VC-129 board. Connect the measuring equipment via the measuring pin tool (J-6082-140-A).

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	N.C
3	GND	4	CAP FG
5	REC 1B	6	REC 2B
7	REC 1A	8	REC 2A
9	RF SWP	10	$\overline{\text{1/2 RF SWP}}$
11	PB RF CH1	12	PB RF CH2
13	RF GND	14	PB RF OUT

Table 9-1.

9-1-5. Connection of Equipments

Connect the measuring equipments as shown in Fig. 9-1 according to the input pin (S VIDEO or VIDEO) specified, adjust the power supply (camera/off/player) switch (S114 of CF-33 board) to "Player", and adjust.

The input pin is specified in the ( ) in the signal column. If there is no specification, although either input pin can be used, the S VIDEO input pin has priority. When adjusting with the video input pin input, pull out the connector from the S VIDEO input pin.

Note: If the VIDEO input is used for adjustments which specify that the S VIDEO input be used, the product specifications of the unit may not be satisfied in some cases. Be sure follow the specifications.
When adjustments are performed with the S VIDEO output terminal VTR as the signal source, the performance of the unit may be affected by the VTR. A pattern generator with a Y/C separation output terminal should be used, if possible.

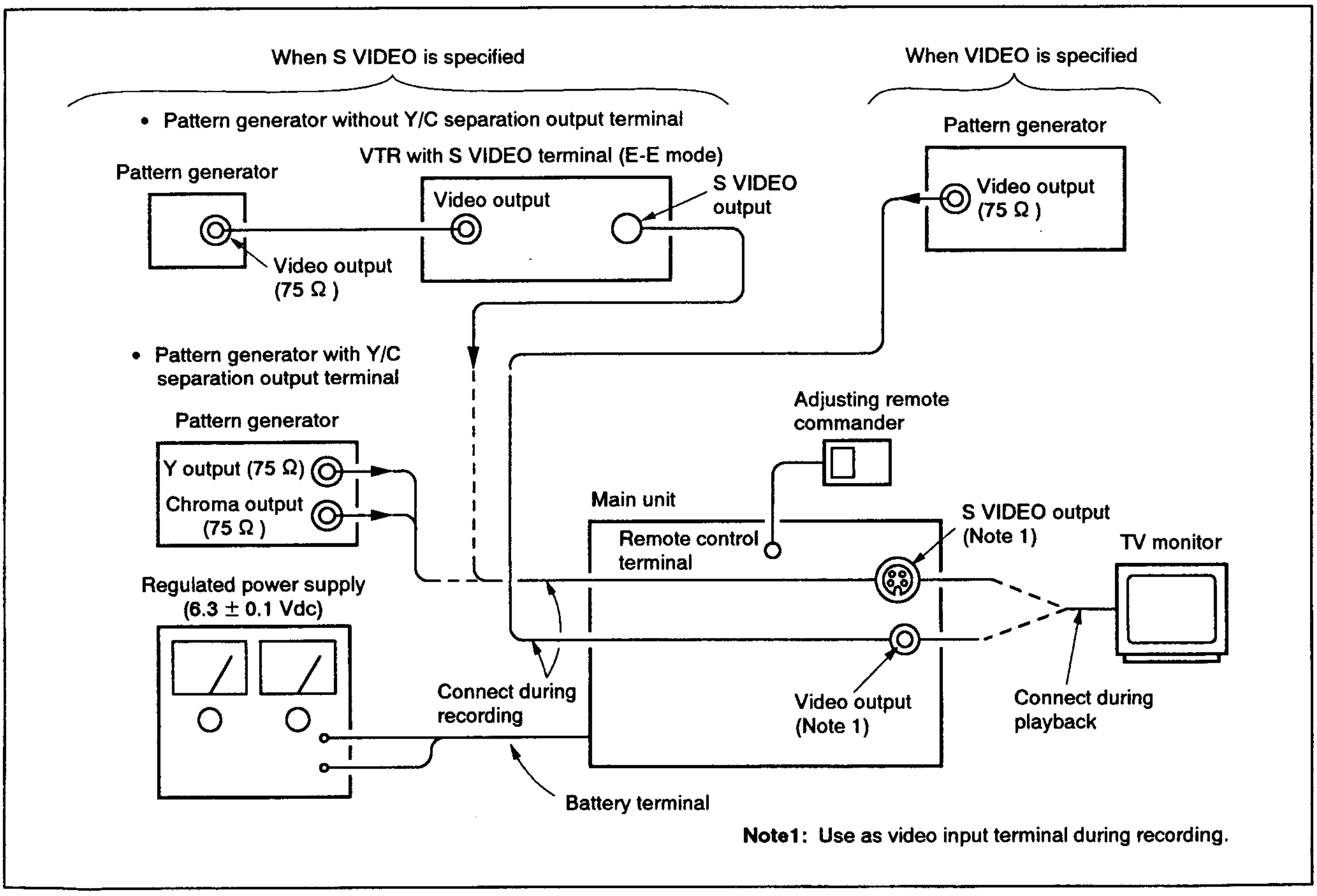

When S VIDEO is specified
When VIDEO is specified
• Pattern generator without Y/C separation output terminal
VTR with S VIDEO terminal (E-E mode)
Pattern generator
Video output
S VIDEO output
Video output (75 Ω)
Pattern generator
Video output (75 Ω)
• Pattern generator with Y/C separation output terminal
Pattern generator
Y output (75 Ω)
Chroma output (75 Ω)
Adjusting remote commander
Main unit
Remote control terminal
S VIDEO output (Note 1)
TV monitor
Regulated power supply (6.3 ± 0.1 Vdc)
Connect during recording
Video output (Note 1)
Connect during playback
Battery terminal
Note1: Use as video input terminal during recording.

Fig. 9-1.

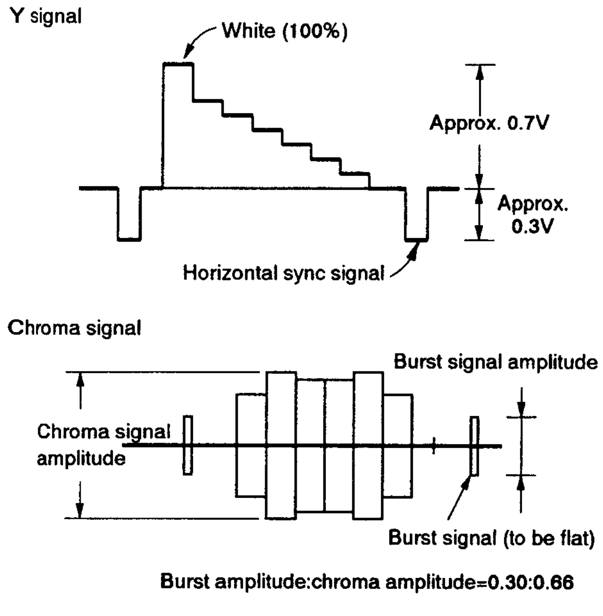
9-1-6. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S VIDEO input/output terminal, and check that the sync signal of the Y signal is approximately 0.3 Vp-p and that the amplitude of the video section is approximately 0.7 Vp-p. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to the chroma signal terminal of the S VIDEO IN terminal, and check that the burst signal amplitude of the chroma signal is approximately 0.3 Vp-p and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30:0.66. The Y and chroma signals used in the adjustment are shown in Fig. 9-2.

Note: Be sure to check in the recording mode.


Y signal
White (100%)
Approx. 0.7V
Approx. 0.3V
Horizontal sync signal
Chroma signal
Burst signal amplitude
Chroma signal amplitude
Burst signal (to be flat)

Burst amplitude:chroma amplitude=0.30:0.66

Fig. 9-2. Color bar signal of pattern generator

2. VIDEO Input

Connect the oscilloscope to the video input/output terminal, and check that the sync signal amplitude of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30:0.66.

The video signal (color bar) used for adjusting the VTR section is shown in Fig. 9-3.

Note: Be sure to check in the recording mode.

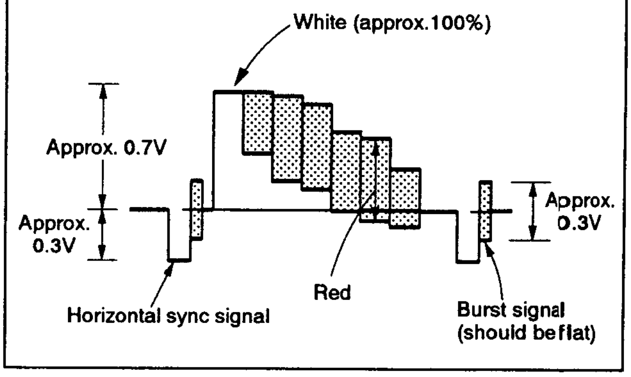

White (approx.100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 9-3. Color Bar Signal of Pattern Generator

9-1-7. Alignment Tape

The following table lists available alignment tapes.
Use the tape specified in the signal column for each adjustment.

If the tape type is not specified for adjustments using tapes to check operations, use any tape for checking operations.

Name	Memory mode	Tape type	Tape speed	Recording Contents		Usage
				Video area	PCM area	
Tracking WR5-1CP	L	MP	SP	CH2: Signal for adjusting 1 MHz tape path		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	E	ME	LP	RF sweep 0 to 15 MHz Marker 2, 4.5, 7, 8.5, 10 MHz		Frequency characteristics adjustment
Video frequency characteristics WR5-2C	L	MP	LP	RF sweep Marker 1, 3.58, 5.5, 7 MHz		
Checking operations (SP mode) WR5-5CSP	L	MP	SP	• Video signal Color bar-4 mins. Monoscope-4 mins. • Audio signal (AFM) 400 Hz 60% modulation	• Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. 14 kHz 20 sec. Repeated 4 times Color bar section 1 kHz 4 mins.	Checking operations
Checking operations WR5-8CSE	E	ME	SP		• Audio signal (PCM) 400 Hz	
Checking operations WR5-4CL	L	MP	LP	• Video signal Color bar 4 mins. Monoscope 4 mins. • Audio signal (AFM) 400 Hz 60% modulation		
Checking operations WR5-8CLE	E	ME	LP		• Audio signal (PCM) 400 Hz	
AFM stereo Checking operations WR5-9CS	L	MP	SP	• Video signal Color bar 4 mins. Monoscope 4 mins. • Audio signal (AFM) Stereo section (color bar) Lch: 400 Hz, Rch: 1 kHz (L+R: 1.5 MHz±60 kHz DEV L–R: 1.7 MHz±30 kHz DEV) Bilingual section (Monoscope) MAIN: 400 Hz (1.5 MHz ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz 8 mins.	AFM stereo Checking operations

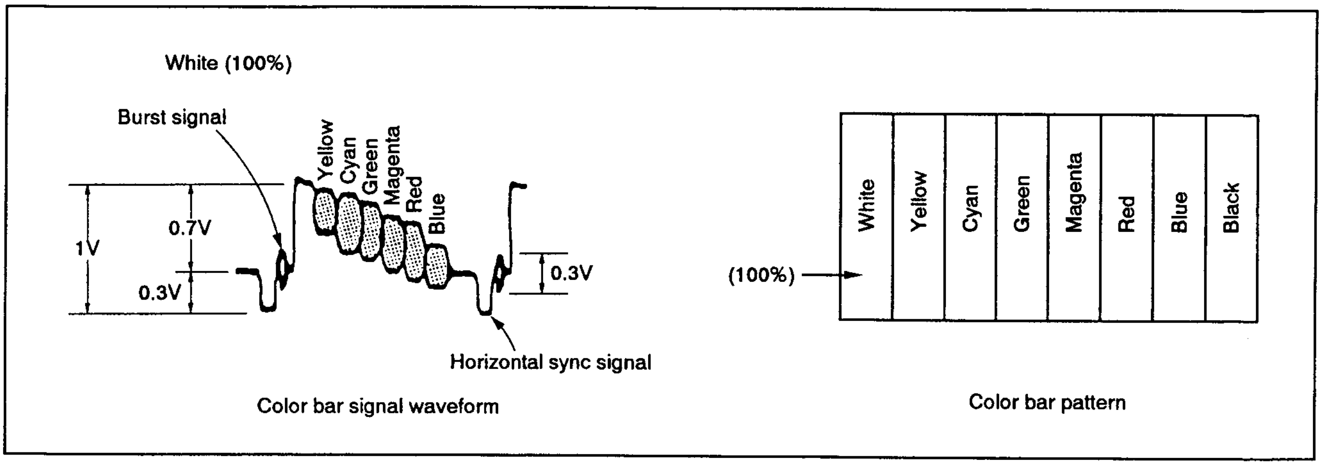
Note: Recording mode
L ·············· Normal (conventional) mode
E ·············· Hi8 (Hi-band) mode

Tape type
MP············ Metal particle tape
ME············ Metal evaporated tape

Table 9-2.

Fig. 9-4. shows 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal (Terminated at 75Ω)


White (100%)
Burst signal
Yellow
Cyan
Green
Magenta
Red
Blue
0.7V
1V
0.3V
0.3V
Horizontal sync signal
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black

Color bar signal waveform

Color bar pattern

Fig. 9-4. Alignment tape color bar signal

9-1-8. Output Level and Impedance

Video output	Pin jack Output signal: 1 Vp-p, 75Ω unbalanced, sync negative
S video output	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
Audio output	Pin jack Specified output: –7.5 dBs Output impedance: Below 2.2 kΩ

9-1-9. Recording Mode (Normal/Hi8) Switching

The record mode (normal/Hi8) of this unit switches as shown in the following table. The playback mode (normal/Hi8) switches automatically according to the recording mode of the tape played back.

Hi8 Switch (Menu Display)	Tape Used	Recording Mode
AUTO	ME	Hi8
	Hi8 MP	
	MP	Normal
OFF	ME	Normal
	Hi8 MP	
	MP	

Table 9-3.

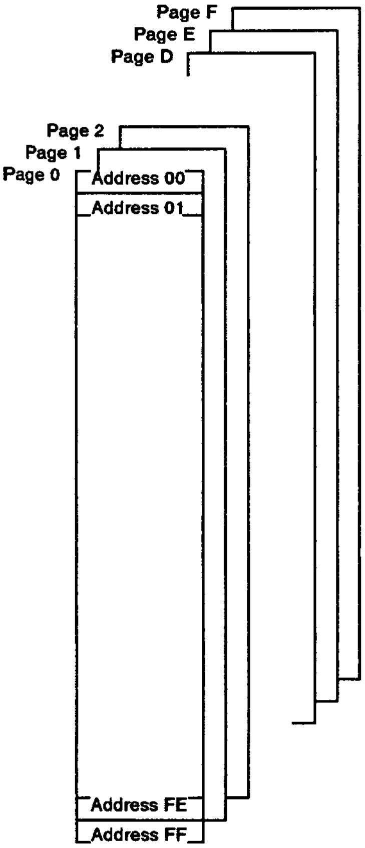
9-1-10. Service Mode

1. Setting the service mode

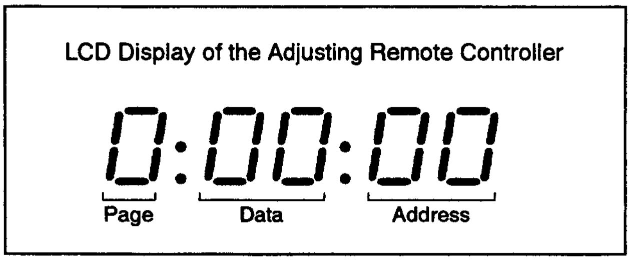
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.

The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

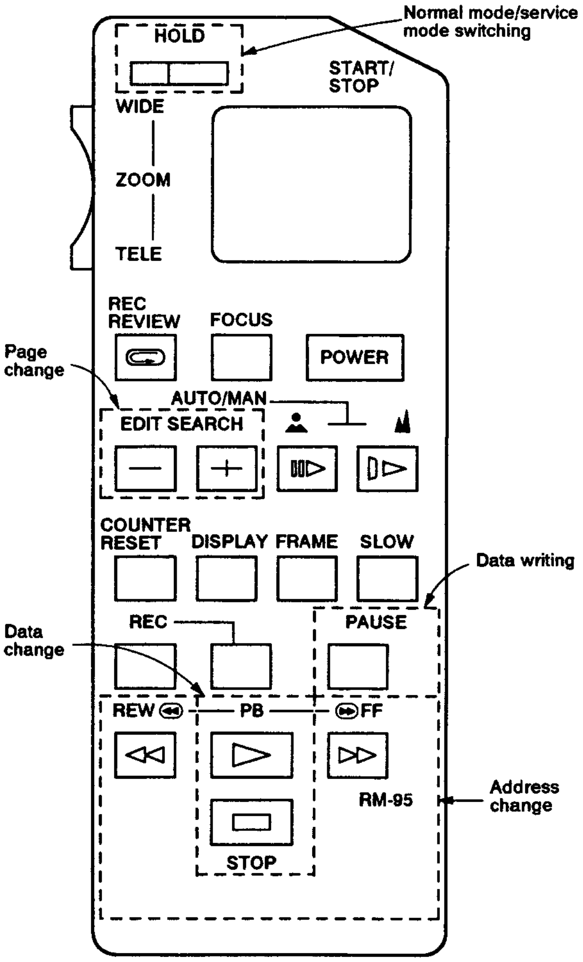
(1) Service LANC memory map


Page F
Page E
Page D
Page 2
Page 1
Page 0
Address 00
Address 01
Address FE
Address FF

Page	Page Layout
0	
1	D page write protect setting/release
2	Mode controller RAM, I/O (Note 1)
3	Mechanism controller RAM, I/O (Note 1)
4	
5	
6	Shared by camera section (Note 1)
7	Camera controller RAM, I/O (Note 1)
8	AF controller RAM, I/O (Note 1)
9	
A	2 bytes data display
B	
C	VTR EEPROM (Note 2)
D	VTR EEPROM (Note 2)
E	Camera EEPROM (Note 3)
F	Camera EEPROM (Note 3)


LCD Display of the Adjusting Remote Controller
0:00:00
Page
Data
Address

Adjusting remote commander RM-95 (J-6082-053-A)


Normal mode/service mode switching
HOLD
START/ STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page change
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
Data writing
REC
PAUSE
Data change
REW
PB
FF
RM-95
Address change
STOP

Note 1: If the data of this page is rewritten using the adjusting remote commander to set the adjustment mode or test mode, the data will not be written in the EEPROM (nonvolatile memory). Therefore, the original condition (normal condition) can be returned by removing the main power supply (6.3V) and lithium battery.

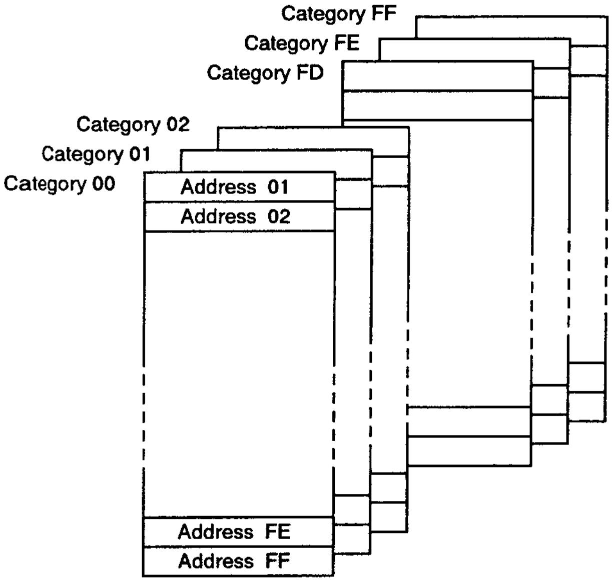
Note 2: The data of this page is written in the EEPROM (IC901 of VC-129 board).

Note 3: The data of this page is written in the EEPROM (IC651 of VC-129 board).

(2) Category codes

This unit uses category codes for pages 2 and 3. The 256 addresses from 00 to FF are insufficient for the mode controller and mechanism controller to access the RAM. Therefore, new category codes have been used to seemingly increase addresses (Addresses 0000 to FFFF).

However, the data of address 00 are actually used as page numbers to form the 256 pages from 00 to FF, as shown in the following figure. This address 00 data are called category codes to discriminate them from the real page numbers. The new pages are called categories.


Category FF
Category FE
Category FD
Category 02
Category 01
Category 00
Address 01
Address 02
Address FE
Address FF

(Example)

Specification of

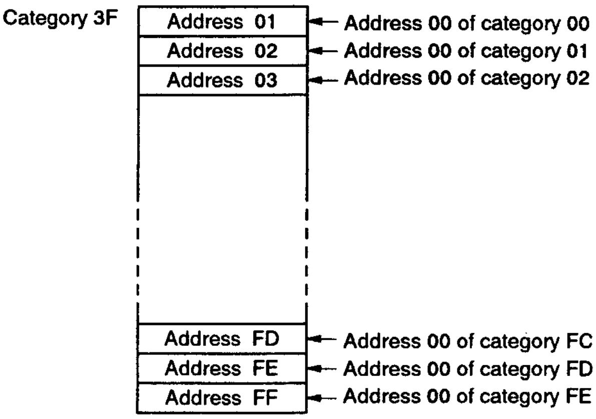
Page 2	Category 01	Address 15

Page 2 is the mode controller
Page 3 is the mechanism controller

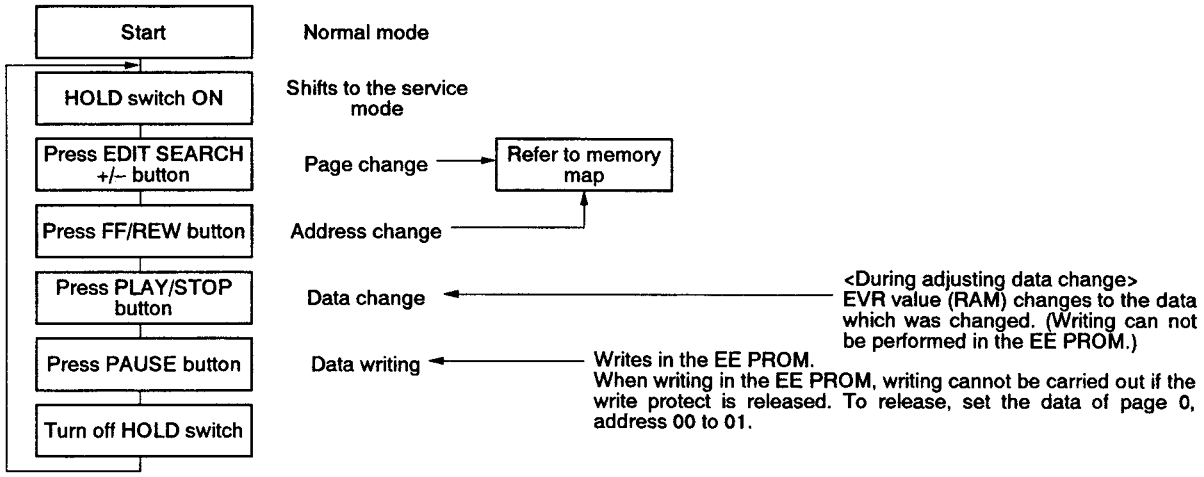
The actual category and address are specified by the adjusting remote commander as follows.

Order	Page	Address	Data	Procedure
1	2	00	01	Select category 01 using the data of page 2, address 00. From here onwards, category 01 will be selected at page 2 until the data of page 2, address 01 is rewritten.
2	2	15		As the data of page 2, address 00 is 01, select page 2, address 15 to select page 2, category 01, address 15. (The data of this address is the battery voltage A/D conversion value of the mode controller input.)

(Supplement) As each category no longer has address 00 as it is, this address cannot be accessed using the adjusting remote commander. Therefore, category 3F is used for accessing address 00.


Category 3F
Address 01
Address 02
Address 03
Address FD
Address FE
Address FF
Address 00 of category 00
Address 00 of category 01
Address 00 of category 02
Address 00 of category FC
Address 00 of category FD
Address 00 of category FE

[Shifting to the service mode using the adjusting remote commander]


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press EDIT SEARCH +/– button
Page change
Refer to memory map
Press FF/REW button
Address change
Press PLAY/STOP button
Data change
Press PAUSE button
Data writing
Turn off HOLD switch

<During adjusting data change>
EVR value (RAM) changes to the data which was changed. (Writing can not be performed in the EE PROM.)

Writes in the EE PROM.
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release, set the data of page 0, address 00 to 01.

Command Name	Command Function	Normal LANC Command
Page Up	Page+1	Edit Search+
Page Down	Page–1	Edit Search –
Direct Page Set	Sets to the specified page	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address–1	Rewind
Data Up	Data+1	Play Back
Data Down	Data–1	Stop
Store	Writes data in the EEPROM, RAM	Pause

2. Page D write protect

Release/set the page D write protect.

Page 1	Address 00

Data	Function
00	Normal (Write protect condition)
01	Release the write protect

3. Test mode setting

Set/release each test mode. Release the protect (Page: 1, Address: 00, Data: 01) before setting the data.

Page D	Address 01

Data	Function
00	Normal
01	Test mode 1 Various emergency prohibitions and releases Drum, capstan, loading motor, reel, tape top and end, DEW SP/LP automatic discrimination prohibition, manual switching, 5 minutes pause release prohibition Power off prohibition/release by battery end
02	Test mode 2 Not used
03	Test mode 3 Track shift Performs the track shift playback Rear lock distinction prohibition during PB SP/LP automatic discrimination prohibition, manual switching
04	Test mode 4 Rear lock mode Performs rear lock playback SP/LP automatic discrimination prohibition, manual switching
05	Test mode 5 SP/LP automatic discrimination prohibition, manual switching

※ For page D, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (6.3 Vdc).

※ Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander.

4. Emergency code

Fault (error) symptoms can be checked.

Page D	Address 06

First emergency code
……First error code generated

Page D	Address 07

Last emergency code
……Last error code generated (This data will be renewed each time an error occurs.)

※ Be sure to rewrite the data of addresses 06 and 07 to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

Code	Error Condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Reel errors at other times
04	Capstan error
05	FG error during drum start up
06	PG error during drum start up
07	FG error during normal drum conditions
08	PG error during normal drum conditions
09	Phase error during normal drum conditions

5. Emergency mode

The operation mode can be checked during faults.

Page D	Address 08

First emergency mode
……The operation mode when the first error is generated

Page D	Address 09

Last emergency mode
……The operation mode when the last error is generated
(This data will be renewed each time an error occurs.)

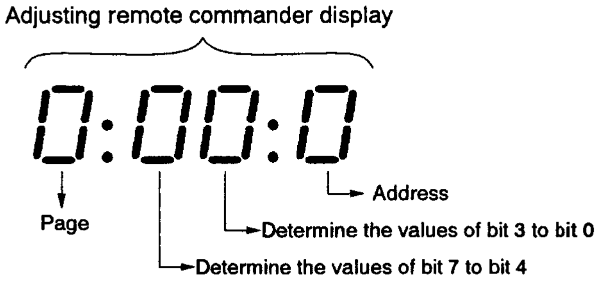
※ Be sure to rewrite the data of addresses 08 and 09 to 00 after repairs/adjustments.

※ When rewriting the data, be sure to press the PAUSE button of the adjusting remote commander after setting the data.

Code	Error Conditions
00	BEFOR INITIALIZE
01	EJECTED
02	NORMAL STOP
03	FF
04	NORMAL REC
06	NORMAL PB
07	PB PAUSE
12	LOADING
14	REC PAUSE
27	1/5 SLOW
31	UNLOADING
46	CUE
56	REVIEW
62	STOP TAPE END
67	FRAME
72	STOP TAPE TOP
83	REWIND
85	REC REVIEW (+)
95	REC REVIEW (–)
A2	EMERGENCY LOADING
A5	EDIT SEARCH (+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH (–)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

6. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is “1” or “0”.


Adjusting remote commander display
0:00:0
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

	Remote controller display	Bit value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(c)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ→	E(E)	1	1	1	0
	F(F)	1	1	1	1

(Example) If the remote commander display data is “8E”, bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

7. Mode controller input check

Page 2	Category 00	Address 02

Bit	Input Signal	Input Signal Level
0	BATT IN (IC903⑮)	"1"=H, "0"=L
1	PB V (IC903⑯)	"1"=PB V input present, "0"=No PB V input
2		
3	LANC PWR ON (IC903⑱)	"1"=H, "0"=L
4	LI PREEND (IC903⑲)	"1"=H, "0"=L
5		
6		
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	02		The H/L of each input signal can be discriminated by differentiating the bit values of the display data.

Page 2	Category 00	Address 1C

Bit	Input Signal	Input Signal Level
0	BATT SENCE (IC903(91))	"1"=L
1	$\overline{\text{EXT BATT}}$ (IC903(92))	"0"=H
2	BRIGHT A (IC903(93))	"1"=H
3	BRIGHT B (IC903(94))	"0"=L
4		
5		
6		
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	1C		The H/L of each input signal can be discriminated by differentiating the bit values of the display data.

8. White balance mode switching

Page 2	Category 00	Address 21

Data	White balance mode
01	Indoor
02	Outdoor
03	Hold
06	Auto

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	AE	40	Prohibition of camera function renewal
3	2	00	01	Specification of category 1
4	2	21		Specify the white balance mode by setting data 01 to 06.

9. Zoom position check

Page 2	Category 00	Address 2B, 2C

Address	Data
2B	Zoom position data (lower)
2C	Zoom position data (upper)

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 01
2	2	2B		Data (00 to FF) indicates lower data of zoom position
3	2	2C		Data (00 to 02) indicates upper data of zoom position. WIDE end: 00 TELE end: 02

10. LCD, LED check

Page 2	Category 00	Address AE

Data	
00	Normal
10	All segments of LCD light up Tally LED lights up

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	AE	10	All segments of LCD and tally LED light up.

11. Key input check

Page 2	Category 3F	Address 01

Bit	Key Switch	Condition of Switch
0	Date (+) (CF-33 S115)	"1"=OFF "0"=ON
1	Time (CF-33 S119)	
2	Cassette eject (CF-33 S111)	
3	Video power supply (CF-33 S114)	
4	Auto lock (CF-33 S108)	
5	Start/Stop (CF-33 S112)	
6	CC DOWN (Mechanism section)	
7	Camera power supply (CF-33 S114)	

Using method:

Order	Page	Address	Data	Procedure
1	2	00	3F	Specification of category 3F
2	2	01		The on/off of each key switch can be discriminated by differentiating the bit values of the display data.

12. Key input check (A/D Port)

Page 2	Category 01	Address 16 to 19

Display Data Address	00 to 10	11 to 4C	4D to 7E	7F to B1	B2 to E7	E8 to FF
16 (AD0: IC903 (82))	(Record)	Stop (FK-33 S205)	Forward (FK-33 S204)	Playback (FK-33 S203)	Edit search (–) (FD-33 S202)	No key input
17 (AD1: IC903 (83))	Pause (FK-33 S211)	Rewind (FK-33 S210)	Menu (FK-33 S209)	Item (FK-33 S208)	Edit search (+) (FK-33 S207)	No key input
18 (AD2: IC903 (84))	Setting (FK-33 S216)		Counter reset (CF-33 S105)			No key input
19 (AD3: IC903 (85))	Program AE (CF-33 S103)	Exposure lock (CF-33 S102)	Focus (CF-33 S101)			No key input

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 00
2	2	16 to 19		The key pressed can be discriminated by the display data of each address.

13. Wireless remote commander reception contents check

Page 2	Category 01	Address 11

Display Data	Pressed Key of Wireless Remote Commander
FF	Non
9A	TELE
9B	WIDE
99	Start/Stop
1B	REW
1C	FWD
18	Stop
1A	Playback
19	Pause
5A	Data screen
1D	(Record)
23	Slow

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	11		The pressed key of the wireless remote commander can be discriminated by the display data.

14. Battery voltage check

Page 2	Category 01	Address 15

Display Data	Battery Voltage
FF	Approx. 10 Vdc
F0	Approx. 9.4 Vdc
E0	Approx. 8.8 Vdc
D0	Approx. 8.2 Vdc
C0	Approx. 7.5 Vdc
B0	Approx. 6.9 Vdc
A0	Approx. 6.3 Vdc
90	Approx. 5.6 Vdc
80	Approx. 5.0 Vdc

Using method:

Order	Page	Address	Data	Procedure
1	2	00	01	Specification of category 01
2	2	15		The battery voltage can be discriminated by the display data.

※ Voltage measurement accuracy is approx. ± 10%.

15. Mechanism section switch, etc. check

Page 2	Category 00	Address 86

<table>
<tr><th>Bit</th><th>Switch, etc.</th><th>Condition</th></tr>
<tr><td>0</td><td>Hi8 MP</td><td>"1"=Hi8 MP tape, "0"=Others</td></tr>
<tr><td>1</td><td>PB E/L</td><td>"1"=Hi8 mode playback, "0"=Others</td></tr>
<tr><td>2</td><td>ME/MP</td><td>"1"=ME tape, "0"=MP tape</td></tr>
<tr><td>3</td><td>REC PROOF</td><td>"1"=Recording prohibited, "0"=Recording possible</td></tr>
<tr><td>4</td><td></td><td></td></tr>
<tr><td>5</td><td>MODE SW 0</td><td rowspan="3">
<table>
<tr><th>Display Data</th><th>Mode Switch Position</th></tr>
<tr><td>8*</td><td>EJECT</td></tr>
<tr><td>6*</td><td>USE</td></tr>
<tr><td>C*</td><td>LS</td></tr>
<tr><td>4*</td><td>GL</td></tr>
<tr><td>A*</td><td>RP(REC, PB, FF, REW, CUE, REVIEW, PAUSE)</td></tr>
<tr><td>2*</td><td>READY(STOP)</td></tr>
</table>
*: 0 to F
</td></tr>
<tr><td>6</td><td>MODE SW 1</td></tr>
<tr><td>7</td><td>MODE SW 2</td></tr>
</table>

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	86		The mode switch position can be discriminated by the upper 1 digit of the display data. The conditions of various switches can be discriminated by the bit value of the lower 1 digit.

16. Mechanism controller input/output check

Page 2	Category 00	Address 85

Bit	I/O Signal	Condition
0	PB LP/SP DET	"1"=LP playback, "0"=Others
1	SYNC DET	"1"=VTR SYNC present, "0"=No VTR SYNC
2	REC CLOG	"1"=Clog occurred, "0"=Others
3		
4	JOG	"1"=Variable speed playback, "0"=Others
5	VA PB MODE	"1"=PB mode, "0"=E-E mode
6	AUDIO MUTE	"1"=Mute, "0"=Audio output
7	VIDEO MUTE	"1"=Mute, "0"=Video output

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	85		The condition of each input/output signal can be discriminated by differentiating the bit value of the display data.

17. Mechanism controller input check

Page 2	Category 00	Address 89

Bit	I/O Signal	Condition
0	$\overline{\text{S IN}}$	"0"=S VIDEO terminal connection condition, "1"=S VIDEO terminal open condition
1	$\overline{\text{DEW DET}}$	"0"=Condensation occurred, "1"=Others
2		
3		
4	$\overline{\text{MIC MONO}}$	"0"=During monaural external microphone use, "1"=Others
5	$\overline{\text{JACK MONO}}$	"0"=Audio input/output terminal (right) connection condition, "1"=Audio input/output terminal (right) open condition
6	PB 1.7M DET	"1"=During AFM stereo/bilingual tape playback, "0"=Others
7		

Using method:

Order	Page	Address	Data	Procedure
1	2	00	00	Specification of category 00
2	2	89		The condition of each input signal can be discriminated by differentiating the bit values of the display data.

18. Mechanism controller A/D port input voltage check

Page 3	Category 02	Address 14

Display Data	A/D Port Input Voltage
00 to FF	Approx. 0 Vdc to approx. 5 Vdc

Using method:

<table>
<tr><th>Order</th><th>Page</th><th>Address</th><th>Data</th><th>Procedure</th></tr>
<tr><td>1</td><td>3</td><td>00</td><td>02</td><td>Specification of category 02</td></tr>
<tr><td>2</td><td>3</td><td>0E</td><td>02</td><td>Permission for A/D conversion operations</td></tr>
<tr><td>3</td><td>3</td><td>13</td><td></td><td>Set the data according to the following table, and specify the A/D port of the mechanism controller.
<table>
<tr><th>Data</th><th>Mechanism Controller Port</th></tr>
<tr><td>00</td><td>(60) pin; AN0, T REEL FG</td></tr>
<tr><td>01</td><td>(59) pin; AN1, S REEL FG</td></tr>
<tr><td>02</td><td>(58) pin; AN2, ATF ERROR</td></tr>
<tr><td>03</td><td>Not used</td></tr>
<tr><td>04</td><td>(56) pin; AN4, $\overline{\text{DEW DET}}$</td></tr>
<tr><td>05</td><td>(55) pin; AN5, TAPE TOP</td></tr>
<tr><td>06</td><td>(54) pin; AN6, TAPE END</td></tr>
</table></td></tr>
<tr><td>4</td><td>3</td><td>14</td><td></td><td>The A/D port input voltage can be discriminated according to the display data.</td></tr>
</table>

19. Tape top/end sensor check

Page 3	Category 02	Address 0A

Display Data	Tape Top/End Sensor Condition
00	Tape present (Middle of tape)
01	Tape top
10	Tape end
11	No tape

Tape end sensor condition
Tape top sensor condition

"0"=Non active (Not receiving light)
"1"=Active (Receiving light)

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	10	Request for tape top/end sampling operations
3	3	0A		The condition of the tape top/end sensor can be discriminated by the display data.

20. Individual operations of the drum, capstan, and loading motor

Page 3	Category 02	Address 11

Display	Operations
00	Normal
02	Drum in normal rotation
04	Drum in reverse rotation
06	Capstan in normal rotation
08	Capstan in reverse rotation
0A	Loading motor in normal rotation
0C	Loading motor in reverse rotation
01	All motors stop
03	
05	
07	
09	
0B	
0D	
0F	

Using method:

Order	Page	Address	Data	Procedure
1	3	00	02	Specification of category 02
2	3	0E	01	Permission for individual operations of motor
3	3	11		The motor can be operated individually by setting the data indicated above.
4				Turn off the main power supply (6.3 Vdc).

21. Page D address list

Note 1: The adjustment data initial value is the data input before performing video section adjustments (Page D) if the Page D data has been erased due to some reason.

Note 2: The data written in the adjustment data memo column are fixed.
After adjusting, check that these data have not been rewritten by mistake.

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
00		Not used	FF	FF
01	Test mode	Test mode	00	00
02	Destination flag	Destination flag	80	80
03	BATT END	Battery end adjustment	00	
04	SW POSITION (LOW)	SW POSITION adjustment [Lower]	00	
05	SW POSITION (HIGH)	SW POSITION adjustment [Lower]	80	
06	EMERGENCY code (FIRST)	Error codes and modes are recorded in the memory. Rewrite the data of these addresses to 00 after repairs/adjustments.	00	00
07	EMERGENCY code (LAST)		00	00
08	EMERGENCY mode (FIRST)		00	00
09	EMERGENCY mode (LAST)		00	00
0A	SR DATA (MP NORMAL SP)	CXA1207 serial data	67	67
0B	SR DATA (MP NORMAL LP)	CXA1207 serial data	5F	5F
0C	SR DATA (ME HI8 SP)	CXA1207 serial data	69	69
0D	SR DATA (ME HI8 LP)	CXA1207 serial data	6F	6F
0E	SR DATA (ME NORMAL SP)	CXA1207 serial data	68	68
0F	SR DATA (ME NORMAL LP)	CXA1207 serial data	5C	5C
10	SR DATA (MP HI8 SP)	CXA1207 serial data	63	63
11	SR DATA (MP HI8 LP)	CXA1207 serial data	5F	5F
12	SR DATA (EDIT ON NORMAL)	CXA1207 serial data	5C	5C
13	SR DATA (EDIT ON HI8)	CXA1207 serial data	65	65
14		Not used	FF	FF
15		Not used	FF	FF
16		Not used	FF	FF
17		Not used	FF	FF
18		Not used	FF	FF
19		Not used	FF	FF
1A		Not used	FF	FF
1B		Not used	FF	FF
1C		Not used	FF	FF
1D		Not used	FF	FF
1E		Not used	FF	FF
1F		Not used	FF	FF
20		DDS display start year, EJECT permission, etc.	02	02
21		CAM P ON, VTR P ON, etc.	00	00
22 to 2A		Not used	FF	FF
2B	BATT END	Battery end voltage correction value when using external battery.	0E	0E
2C	HUNTING THRESHOLD	Hunting prevention threshold level	9A	9A
2D	BATT REMAIN	2/4→1/4 threshold voltage Battery remained amount display	A0	A0
2E	BATT REMAIN	3/4→2/4 threshold voltage	AA	AA
2F	BATT REMAIN	4/4→3/4 threshold voltage	B0	B0

Table 9-4 (1).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
30	REC C 1A (ME)	ME 1Ach REC C level adjustment (⑫ of IC303)		
31	REC C 1A (MP)	MP 1Ach REC C level adjustment (⑫ of IC303)		
32	REC C 1B (ME)	ME 1Bch REC C level adjustment (⑬ of IC303)		
33	REC C 1B (MP)	MP 1Bch REC C level adjustment (⑬ of IC303)		
34	REC C 2A (ME)	ME 2Ach REC C level adjustment (⑭ of IC303)		
35	REC C 2A (MP)	MP 2Ach REC C level adjustment (⑭ of IC303)		
36	REC C 2B (ME)	ME 2Bch REC C level adjustment (⑮ of IC303)		
37	REC C 2B (MP)	MP 2Bch REC C level adjustment (⑮ of IC303)		
38	CAP FG OFFSET	Capstan FG bias adjustment (⑰ of IC303)	80	
39		Not used	FF	FF
3A		Not used	FF	FF
3B		Not used	FF	FF
3C	MT F0 (E)	Hi8 playback RF equalizer f0 frequency adjustment (㉒ of IC303)		
3D	MT F0 (L)	Normal playback RF equalizer f0 frequency adjustment (㉒ of IC303)		
3E	MT 2A (E)	Hi8 2Ach frequency characteristics adjustment (⑳ of IC303)	80	
3F	MT 2A (L)	Normal 2Ach frequency characteristics adjustment (⑳ of IC303)	80	
40	MT 2B (E)	Hi8 2Bch frequency characteristics adjustment (㉑ of IC303)	80	
41	MT 2B (L)	Normal 2Bch frequency characteristics adjustment (㉑ of IC303)	80	
42	MT 1A (E)	Hi8 1Ach frequency characteristics adjustment (⑱ of IC303)	80	
43	MT 1A (L)	Normal 1Ach frequency characteristics adjustment (⑱ of IC303)	80	
44	MT 1B (E)	Hi8 1Bch frequency characteristics adjustment (⑲ of IC303)	80	
45	MT 1B (L)	Normal 1Bch frequency characteristics adjustment (⑲ of IC303)	80	
46		Not used	FF	FF
47		Not used	FF	FF
48	RF CONT (ME)	ME RF CONT (⑪ of IC303)	58	58
49	RF CONT (MP)	MP RF CONT (⑪ of IC303)	58	58
4A	SYNC AGC	SYNC AGC adjustment (㊳ of IC303)		
4B		Not used	FF	FF
4C	C COMB	Chroma comb type filter adjustment (㊴ of IC303)		
4D	SR IR	IR adjustment (㊷ of IC303)		
4E	CAR.-E	Hi8 Y-FM carrier frequency adjustment (㊸ of IC303)		
4F	CAR.-L	Normal Y-FM carrier frequency adjustment (㊸ of IC303)		
50	DEV.-E	Hi8 Y-FM deviation adjustment (㊹ of IC303)		
51	DEV.-L	Normal Y-FM deviation adjustment (㊹ of IC303)		
52	REC Y (ME E)	Hi8 ME REC Y level adjustment (⑯ of IC303)		
53	REC Y (MP E)	Hi8 MP REC Y level adjustment (⑯ of IC303)		
54	REC Y (ME L)	Normal ME REC Y level adjustment (⑯ of IC303)		
55	REC Y (MP L)	Normal MP REC Y level adjustment (⑯ of IC303)		
56		Not used	FF	FF
57	PB Y (EE)	EE mode REC Y level (㊼ of IC303)	00	00
58	PB Y (E)	Hi8 PB Y level adjustment (㊼ of IC303)		
59	PB Y (L)	Normal PB Y level adjustment (㊼ of IC303)		
5A	EMPH (EE)	EE emphasis input level adjustment (㊽ of IC303)		
5B	EMPH (PB)	PB emphasis input level adjustment (㊽ of IC303)		

Table 9-4 (2).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
5C		Not used	FF	FF
5D		Not used	FF	FF
5E		Not used	FF	FF
5F		Not used	FF	FF
60		Not used	FF	FF
61		Not used	FF	FF
62		Not used	FF	FF
63		Not used	FF	FF
64		Not used	FF	FF
65		Not used	FF	FF
66	YD ADJ	YD level (㊵ of IC303)	B1	B1
67	PAL JOG	Delay burst phase adjustment (㊶ of IC303)		
68	D.CLIP (ME E SP)	Hi8 ME SP DARK CLIP (㊺ of IC303)	65	65
69	D.CLIP (MP E SP)	Hi8 MP SP DARK CLIP (㊺ of IC303)	65	65
6A	D.CLIP (ME L SP)	Normal ME SP DARK CLIP (㊺ of IC303)	53	53
6B	D.CLIP (MP L SP)	Normal MP SP DARK CLIP (㊺ of IC303)	53	53
6C	D.CLIP (ME E LP)	Hi8 ME LP DARK CLIP (㊺ of IC303)	66	66
6D	D.CLIP (MP E LP)	Hi8 MP LP DARK CLIP (㊺ of IC303)	4D	4D
6E	D.CLIP (ME L LP)	Normal ME LP DARK CLIP (㊺ of IC303)	B1	B1
6F	D.CLIP (MP L LP)	Normal MP LP DARK CLIP (㊺ of IC303)	B1	B1
70	W.CLIP (ME E SP)	Hi8 ME SP WHITE CLIP (㊻ of IC303)	7C	7C
71	W.CLIP (MP E SP)	Hi8 MP SP WHITE CLIP (㊻ of IC303)	AE	AE
72	W.CLIP (ME L SP)	Normal ME SP WHITE CLIP (㊻ of IC303)	53	53
73	W.CLIP (MP L SP)	Normal MP SP WHITE CLIP (㊻ of IC303)	53	53
74	W.CLIP (ME E LP)	Hi8 ME LP WHITE CLIP (㊻ of IC303)	4D	4D
75	W.CLIP (MP E LP)	Hi8 MP LP WHITE CLIP (㊻ of IC303)	20	20
76	W.CLIP (ME L LP)	Normal ME LP WHITE CLIP (㊻ of IC303)	B1	B1
77	W.CLIP (MP L LP)	Normal MP LP WHITE CLIP (㊻ of IC303)	B1	B1
78	REC/PB MX (REC)	REC matrix adjustment (㉘ of IC303)		
79	REC/PB MX (PB)	PB matrix adjustment (㉘ of IC303)		
7A	1.5 IR	1.5 MHz IR adjustment (㉖ of IC303)		
7B	1.5 DEV	1.5 MHz deviation adjustment (㉗ of IC303)		
7C	1.7 IR	1.7 MHz IR adjustment (㉔ of IC303)		
7D	1.7 DEV	1.7 MHz deviation adjustment (㉕ of IC303)		
7E to 83		Not used	FF	FF
84	ME CONT (ME E)	Hi8 ME REC C level (㉓ of IC303)	FF	FF
85	ME CONT (MP E)	Hi8 MP REC C level (㉓ of IC303)		
86	ME CONT (ME L)	Normal ME REC C level (㉓ of IC303)	FF	FF
87	ME CONT (MP L)	Normal MP REC C level (㉓ of IC303)		
88		Not used	FF	FF
89	ME CONT (MP E LP)	Hi8 MP LP REC C level (㉓ of IC303)		
8A			FF	FF
8B	ME CONT (MP L LP)	Normal MP LP REC C level (㉓ of IC303)		
8C	REC C RV (REC)	REC C RF level adjustment (⑩ of IC303)		
8D	REC C RV (PB)	PB mode REC C RF level adjustment (⑩ of IC303)	00	00

Table 9-4 (3).

Address	Name	Function [ ] contains the adjustment voltage output terminal	Adjustment data	
			Initial valu	Memo column
8E		Not used	FF	FF
8F		Special use	00	00
90 to DF		Not used	FF	FF
E0	NEXT DEF BIT	CCD imager correction pattern (for backup)		
E1	CCD DEFECT 0	CCD imager correction data (for backup) ※ Refer to "CCD Imager Correction Data Writing" of Camera Section Adjustments.		
E2	CCD DEFECT 1			
E3	CCD DEFECT 2			
E4	CCD DEFECT 3			
E5	CCD DEFECT 4			
E6	CCD DEFECT 5			
E7	CCD DEFECT 6			
E8	CCD DEFECT 7			
E9	CCD DEFECT 8			
EA	CCD DEFECT 9			
EB	CCD DEFECT 10			
EC	CCD DEFECT 11			
ED	CCD DEFECT 12			
EE	CCD DEFECT 13			
EF	CCD DEFECT 14			
F0 to FF		Establishment area		

Table 9-4 (4).

9-2. ADJUSTING POINTS WHEN REPLACING MAIN PARTS

1. When replacing drum

"Switching Position Adjustment" of "Servo System Adjustments"
"Playback Frequency Characteristics Adjustment" of "Video System Adjustments"

2. When replacing capstan motor

"CAP FG Duty Adjustment" of "Servo System Adjustments"

9-3. POWER SUPPLY SYSTEM ADJUSTMENTS

1. Oscillator frequency check (DD-54 board)

Mode	Camera record
Subject	Arbitrary
Measurement Point	Q355 collector
Measuring Instrument	Frequency counter
Specified Value	460 ± 30 kHz

2. Power supply voltage check (DD-54 board)

Mode	Camera record
Subject	Arbitrary
Measuring Instrument	Digital voltmeter
EVF 5V check	
Measurement Point	Pin ⑮ of CN352
Specified Value	4.92 ± 0.15 Vdc
SS5V check	
Measurement Point	Pin ⑬ of CN352
Specified Value	4.71 ± 0.15 Vdc
D5V check	
Measurement Point	Pins ⑤ and ⑥ of CN352
Specified Value	4.90+0.15 Vdc
D4V check	
Measurement Point	Pin ③ of CN352
Specified Value	3.95 ± 0.15 Vdc
VIDEO 5V check	
Measurement Point	Pins ⑪ and ⑫ of CN352
Specified Value	4.69 ± 0.15 Vdc
AU5V check	
Measurement Point	Pin ⑭ of CN352
Specified Value	4.72 ± 0.15 Vdc
CAM 5V check	
Measurement Point	Pin ① of CN352
Specified Value	4.85 ± 0.15 Vdc
15V check	
Measurement Point	Pin ④ of CN352
Specified Value	15.00 ± 0.4 Vdc
–8.5V check	
Measurement Point	Pin ② of CN352
Specified Value	–8.5 ± 0.5 Vdc

9-4. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page D initial value input

If the page D data is erased due to some cause, input the page D initial value before adjusting. For details on the initial value, refer to "Page D Address List" in "9-1-9. Service Mode". Input the CCD correction data (Page F, addresses 1F to 2E) to addresses E0 to EF as backup data. For details, refer to "CCD correction data writing" of "Camera Section Adjustments".

Mode	Stop
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	00 to AF, E0 to EF

Inputting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	00~AF		Input the data (initial value) according to the "Page D Address List". After setting each data, be sure to press the PAUSE button.	
3	D	E0 E1 E2 ⋮ EF		Set the data of page F address 1F, and press the PAUSE button. Set the data of page F address 20, and press the PAUSE button. Set the data of page F address 21, and press the PAUSE button. ⋮ Set the data of page F address 2E, and press the PAUSE button.	

2. Battery end adjustment

Mode	Camera record, auto focus off
Subject	Arbitrary
Measurement Point	LCD display of the adjusting remote commander
Measuring Instrument	
Adjustment Page	D
Adjustment Address	03 (BATT END)

Connection:

1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-5.

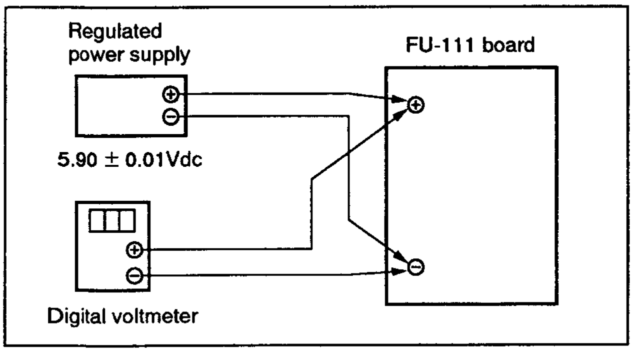


Fig. 9-5.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 6.3 ± 0.1 Vdc.	
2				Set the camera recording mode. The auto focus turns off.	
3	**1**	**00**	**01**	**Releasing of protect.**	
4				Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.90 ± 0.01 Vdc.	
5	2	00	01	Specification of page 2, category 1.	
6	2	15		Read the adjusting remote commander display data and take it as D03.	
7	D	03		Set D03, and press the PAUSE button.	Camera recording mode
8				Turn off the power supply.	

9-5. SERVO SYSTEM ADJUSTMENTS

1. Switching position adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For adjusting tracking(WR5-1CP)
Measurement Point	CH1: Pin ⑨ of CN002 (RF SWP) CH2: Pin ⑫ of CN002 (PB RF CH2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	04 (SW POSITION (LOW)) 05 (SW POSITION (HIGH))
Specified Value	t1=0 ± 10 μsec.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	05	80	Initial setting.	
3	D	05		Change the data with the PLAY and STOP buttons, and minimize t1.	Playback mode
4	D	05		Press the PAUSE button.	
5	D	04		Change the data with the PLAY and STOP buttons, and minimize t1.	Playback mode
6	D	04		Press the PAUSE button.	
7				Check that t1 satisfies the specified value. If not, repeat steps 03 to 07 in order.	

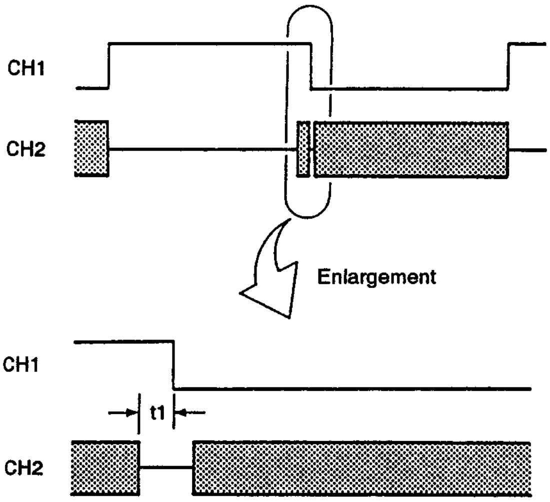
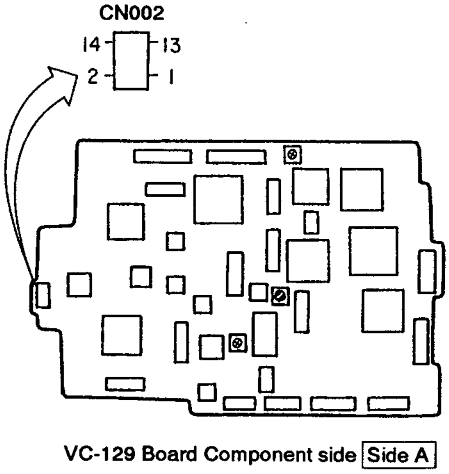


Fig. 9-6.



VC-129 Board Component side Side A

Fig. 9-7.

2. CAP FG duty adjustment (VC-129 board)

Mode	Record
Signal	Color bar
Measurement Point	Pin ④ of CN002 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	38 (CAP FG BIAS)
Specified Value	Duty=50 ± 1%

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	38	80	Initial setting	
3	D	38		Press the PLAY and STOP buttons, and adjust the duty of the CFG waveform to the specified value.	Recording mode
4	D	38		Press the PAUSE button.	

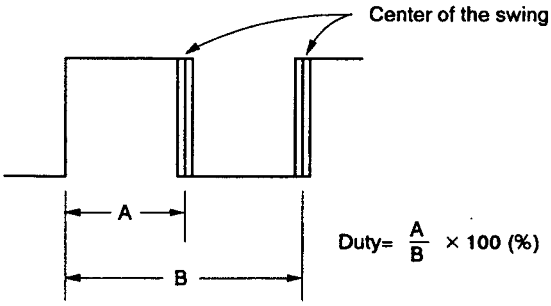


Fig. 9-8.

9-6. VIDEO ADJUSTMENTS

Basically, the video system must be adjusted according to the following adjustment procedures.
The color video signal supplied from the pattern generator is used as the video input signal for adjusting the video system in the recording mode. Check that the sync signal and the color burst signal satisfy the standards specified for the set-ups for adjustments shown in Figs. 9-2 and 9-3.
Use a ME tape unless specified otherwise. Also check that the Hi8 switch is at "AUTO" at the menu display.

[Adjusting procedure]

1) PB RF equalizer fo adjustment
2) Playback frequency characteristics adjustment
3) Flying erase check
4) VXO oscillation frequency check
5) SYNC AGC adjustment
6) IR adjustment
7) Chroma comb filter adjustment
8) Emphasis input level adjustment
9) PB Y level adjustment
10) Normal mode Y FM deviation adjustment
11) Normal mode Y FM carrier frequency adjustment
12) Hi8 mode Y FM deviation adjustment
13) Hi8 mode Y FM carrier frequency adjustment
14) REC Y RF level adjustment
15) Chroma emphasis adjustment
16) REC C RF level adjustment
17) REC C preset adjustment
18) Hi8 MP tape REC C level adjustment
19) Normal MP tape REC C level adjustment
20) REC ATF level check
21) Chroma flicker adjustment
22) REC AFM level check
23) Chroma comb filter fine adjustment
24) Delay burst phase adjustment
25) Character generator oscillation frequency adjustment

1. PB RF equalizer f0 adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode frequency characteristics (WR5-7CE)
Measurement Point	CH1: Pin ⑪ of CN002 EXT TRIG: Pin ⑨ of CN002
Measuring Instrument	Oscilloscope TRIG SLOP: −
Adjustment Page	D
Adjustment Address	3C (MT FO (E)), 3D (MT FO (L))
Specified Value	8.5 MHz level is maximum

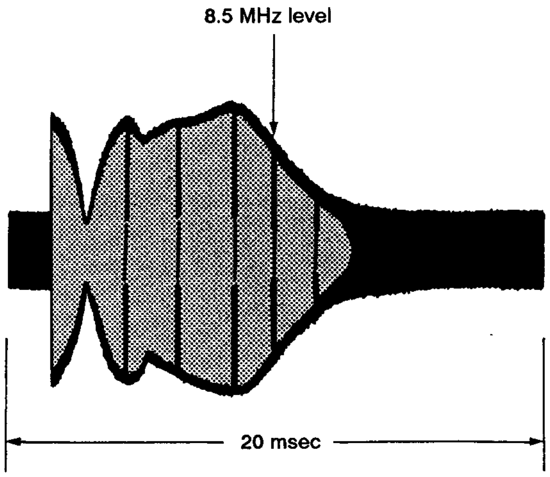


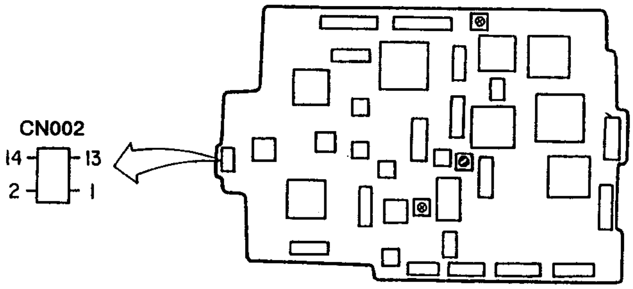
Fig. 9-9.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	42		Note down the data, and set the data to FF. (Maximizing the f₀ peaking level)	
3	D	3C		Change the data with the PLAY and STOP buttons, and maximizing the 8.5 MHz level of the PB RF waveform. Press the PAUSE button.	Playback mode
4	D	3C		Adjust to the same data as address 3C, and press the	
5	D	3D		PAUSE button. Set the data noted at step 2, and press the PAUSE	
6	D	42		button. Check that t1 satisfies the specified value.	

2. Playback frequency characteristics adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For adjusting Hi8 mode frequency characteristics (WR5-7CE)
Measurement Point	Refer to Fig. 9-11.
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	42 (MT 1A (E)), 44 (MT 1B (E)), 3E (MT 2A (E)), 40 (MT 2B (E)), 43 (MT 1A (L)), 45 (MT 1B (L)), 3F (MT 2A (L)), 41 (MT 2B (L))
Specified Value	4.5 MHz level: 8.5 MHz level= 3: (2.0 ± 0.2)


CN002
14
13
2
1

VC-129 Board Component side Side A

Fig. 9-10.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	42		Change the data with the PLAY and STOP buttons, and adjust the level ratio of the 4.5 MHz and 8.5 MHz sections of the PB RF waveform of channel 1a to the specified value.	Playback mode
3	D	42		Press the PAUSE button.	
4	D	44 3E 40		Adjust in the same way for channel 1b (address 44), channel 2a (address 3E), channel 2b (address 40).	Playback mode
5	D	43		Adjust to the same data as address 42, and press the PAUSE button.	
6	D	45		Adjust to the same data as address 44, and press the PAUSE button.	
7	D	3F		Adjust to the same data as address 3E, and press the PAUSE button.	
8	D	41		Adjust to the same data as address 40, and press the PAUSE button.	

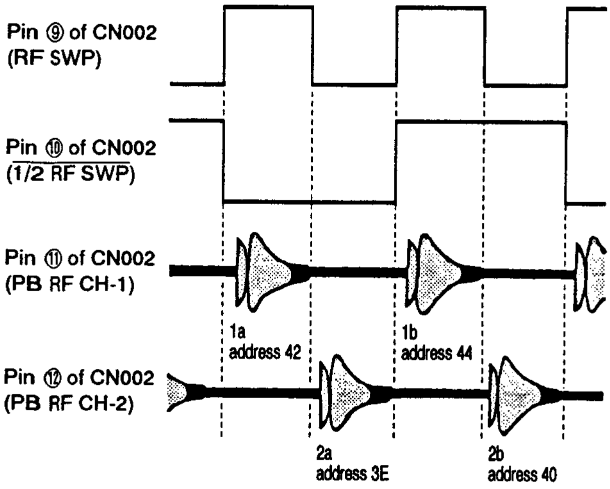

Pin ⑨ of CN002
(RF SWP)
Pin ⑩ of CN002
(1/2 RF SWP)
Pin ⑪ of CN002
(PB RF CH-1)
1a
address 42
1b
address 44
Pin ⑫ of CN002
(PB RF CH-2)
2a
address 3E
2b
address 40

Fig. 9-11.

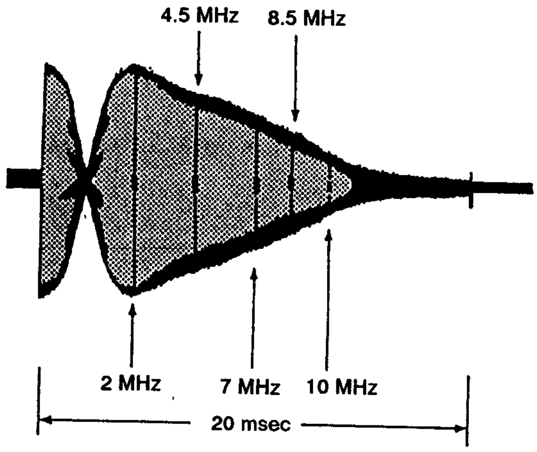


Fig. 9-12.

3. Flying erase check (VC-129 board)

Mode	Record
Signal	Arbitrary
Measurement Point	Pin ⑮ of CN001 (FE (X))
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: Above 7.5 MHz Voltage: Above 6.0 Vp-p (ME tape) Above 7.5Vp-p (MP tape)

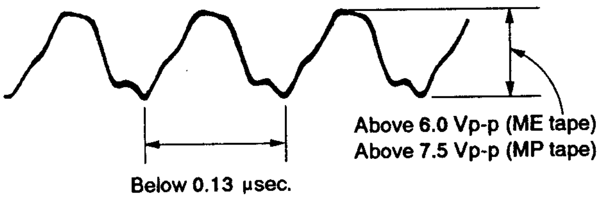


Fig. 9-13.

4. VXO oscillation frequency check (VC-129 board)

Mode	Playback
Signal	Any tape
Measurement Point	Pin ⑫ of IC404 or Pin ㉗ of CN304
Measuring Instrument	Frequency counter
Specified Value	4433619 ± 50 Hz

Note: Connect the frequency counter via a high impedance (approximately 10 MΩ) and low capacity (below 10 pF) buffer.

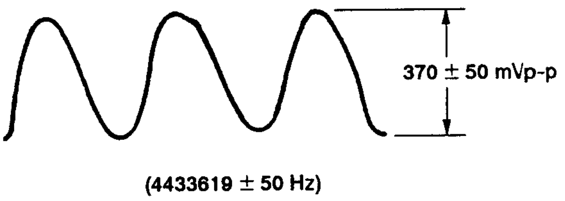
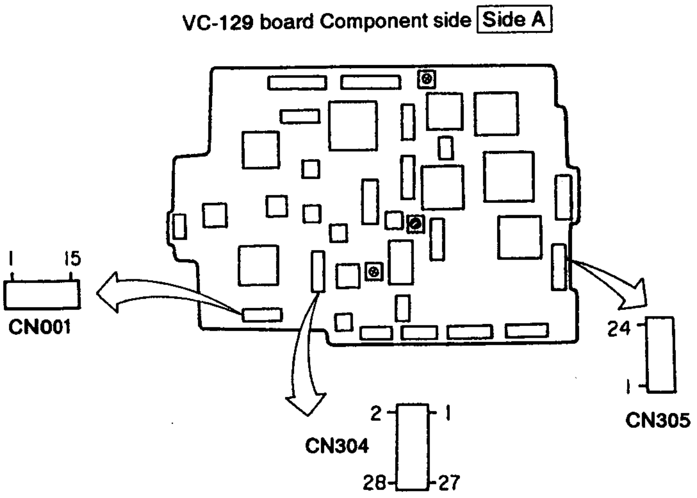


Fig. 9-15.



VC-129 board Component side Side A
1
15
CN001
24
1
CN305
2
1
CN304
28
27

Fig. 9-14.

5. SYNC AGC adjustment (VC-129 board)

Mode	Camera mode recording
Signal	Y signal of color bar (Note 1)
Measurement Point	Pin ⑬ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (SYNC AGC)
Specified Value	A=1.00 ± 0.02V

Note 1: Input the Y signal using the camera section measuring pin tool (J-6082-139-A) as shown in the following figure.

Note 2: Insert the plug in the S VIDEO input/output terminal.

Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .

Note 4: When the lens block is connected, cover the lens with a black cap.

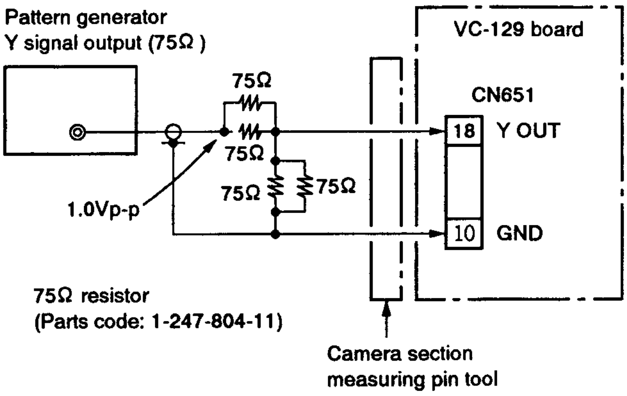

Pattern generator
Y signal output (75Ω)
75Ω
75Ω
75Ω
75Ω
1.0Vp-p
75Ω resistor
(Parts code: 1-247-804-11)
VC-129 board
CN651
18
Y OUT
10
GND
Camera section
measuring pin tool

Fig. 9-16.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	4A		Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value.	Recording mode
3	D	4A		Press the PAUSE button.	

Related Adjustments:
"Emphasis input level adjustment", "PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Normal mode Y FM carrier frequency adjustment", "Hi8 mode Y FM deviation adjustment", "Hi8 mode Y FM carrier frequency adjustment".

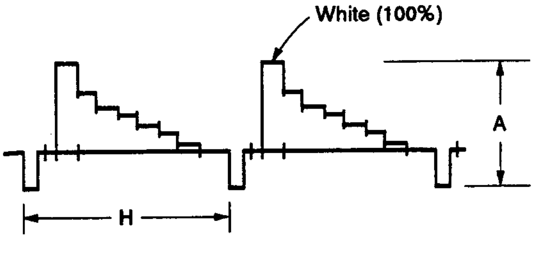

White (100%)
A
H

Fig. 9-17.

6. IR adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑦ of IC401 (Y COMB OUT) (JL407)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (SR IR)
Specified Value	Minimum residual chroma component (A) (Below 40 mVp-p)

Connection:

1) Connect Pin ⑭ of IC401 (or Pin ② of IC403) and Pin (51) of IC401 with a jumper wire.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the input is "VIDEO".	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	4D		Change the data with the PLAY and STOP buttons, and minimize the residual chroma component (A).	Recording mode Connect Pin ② of IC403 and Pin (51) of IC401 with a jumper wire.
4	D	4D		Press the PAUSE button.	

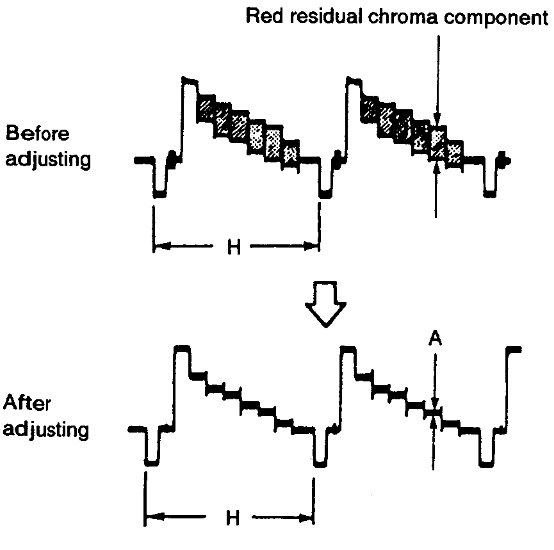

Red residual chroma component
Before adjusting
H
A
After adjusting
H

Fig. 9-18.

Note: Remove the lens block and adjust.

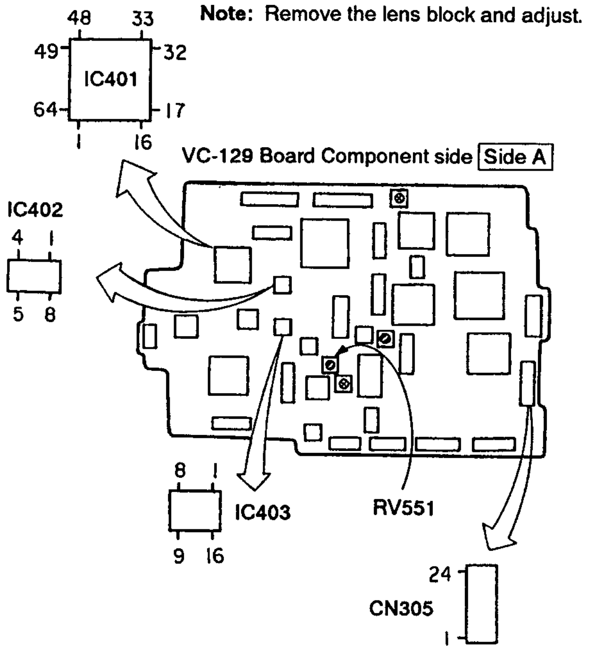

48
33
49
32
IC401
64
17
1
16
VC-129 Board Component side
Side A
IC402
4
1
5
8
8
1
IC403
9
16
RV551
24
CN305
1

Fig. 9-19.

Related Adjustments:
"Chroma comb filter adjustment", "Emphasis input level adjustment", "PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Normal mode Y FM carrier frequency adjustment", "Hi8 mode Y FM deviation adjustment", "Hi8 mode Y FM carrier frequency adjustment".

7. Chroma comb filter adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑪ of IC401 (C+CD) (JL410)
Measuring Instrument	Oscilloscope
Adjusting Element	RV551 (Phase)
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum residual chroma component (A)

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the input is "VIDEO".	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Minimize the residual chroma component (A) with RV551.	Recording mode
4	D	4C		Change the data with the PLAY and STOP buttons, and minimize the residual chroma component.	Recording mode
5	D	4C		Press the PAUSE button.	
6				Repeat steps 3 to 5 in order.	

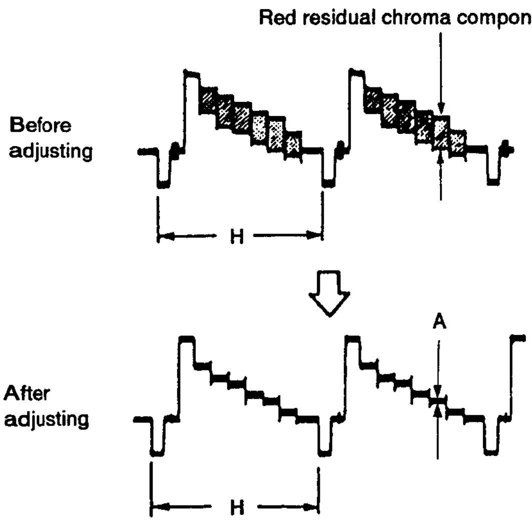


Fig. 9-20.

Related Adjustments:
"Chroma comb filter fine adjustment".

8. Emphasis input level adjustment (VC-129 board)

Mode	Record
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑤ of IC402 (JL408)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5A (EMP LEVEL (REC)) 5B (EMP LEVEL (PB))
Specified Value	A=0.50 ± 0.01V

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of the protect.**	
2	D	5A		Change the data with the PLAY and STOP buttons, and adjust the Y signal level (A) to the specified value.	Recording mode
3	D	5A		Press the PAUSE button.	
4	D	5B		Set the same data as address: 5A.	
5	D	5B		Press the PAUSE button.	

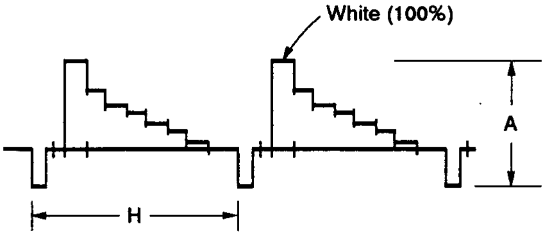


Fig. 9-21.

Related Adjustments:
"PB Y level adjustment", "Normal mode Y FM deviation adjustment", "Hi8 mode Y FM deviation adjustment".

9. PB Y level adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section • Normal mode WR5-5CSP • Hi8 mode WR5-8CSE
Measurement Point	Pin ⑬ of CN305 (S-Y I/O (Note 1 and Note 2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	• Normal mode 59 (PB Y L) • Hi8 mode 58 (PB Y E)
Specified Value	A=1.00 ± 0.02V

Note 1: Insert the plug into the S VIDEO input/output terminal.
Note 2: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω .

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Play back the color bar section of the normal mode alignment tape.	
3	D	59		Change the data with the PLAY and STOP buttons, and adjust the playback signal level (A) to the specified value.	Play back WR5-5CSP.
4	D	59		Press the PAUSE button.	
5				Play back the color bar section of the Hi8 mode alignment tape.	
6	D	58		Change the data with the PLAY and STOP buttons, and adjust the playback signal level (A) to the specified value.	Play back WR5-8CSE.
7	D	58		Press the PAUSE button.	

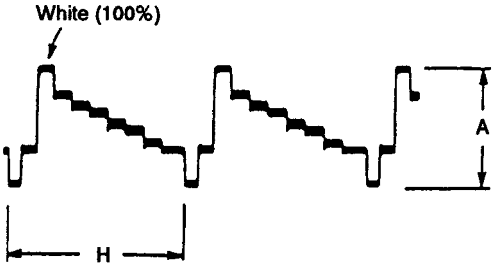


Fig. 9-22.

10. Normal mode Y FM deviation adjustment (VC-129 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑬ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	51 (DEV. -L)
Specified Value	A=1.00 ± 0.04V

Note 1: Check that the "Emphasis input level adjustment" and "PB Y level adjustment" have been completed.
Note 2: Insert the plug into the S VIDEO input/output terminal.
Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω during playback mode.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Record the color bar signal.	Normal MP tape
4				Play back the recorded signal.	
5				Compare the playback signal level with the specified value. If it satisfies the value, the adjustment is completed.	
6	D	51		If not,: Change the data with the PLAY and STOP buttons. • Decrease the data if the playback signal level is greater than the specified value. • Increase the data if smaller.	
7	D	51		Press the PAUSE button.	
8				Return to step 3.	

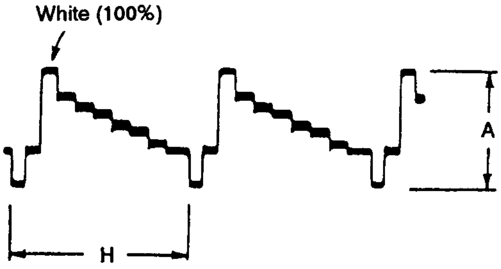


Fig. 9-23.

Related Adjustments:
"Normal mode Y FM carrier frequency adjustment".

11. Normal mode Y FM carrier frequency adjustment (VC-129 board)

Mode	Record
Signal	Non-signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4F (CAR. -L)
Specified Value	4.37 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	4F		Change the data with the PLAY and STOP buttons, and adjust the Y FM carrier frequency to the specified value.	Normal MP tape Recording mode, no signal input
4	D	4F		Press the PAUSE button.	

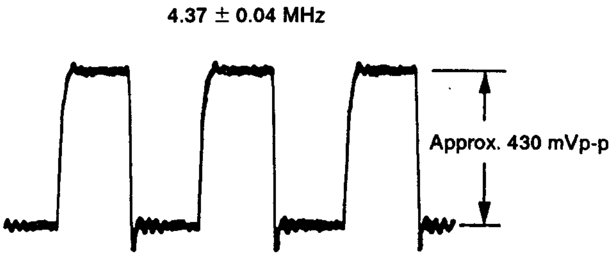


Fig. 9-24.

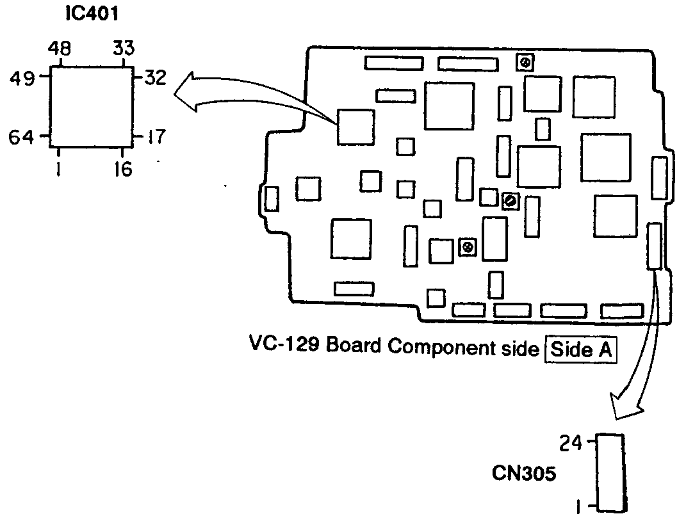

IC401
48
33
49
32
64
17
1
16
VC-129 Board Component side Side A
24
CN305
1

Fig. 9-25.

12. Hi8 mode Y FM deviation adjustment (VC-129 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑬ of CN305 (S-Y I/O) (Note 2 and Note 3)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	50 (DEV. -E)
Specified Value	A=0.50 ± 0.025V

Note 1: Check that "Emphasis input level adjustment" and "PB Y level adjustment" have been completed.
Note 2: Insert the plug into the S VIDEO input/output terminal.
Note 3: Terminate the Y signal terminal of the S VIDEO input/output terminal at 75Ω during playback mode.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a ME type tape.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Record the color bar signal.	Hi8 ME tape
4				Play back the recorded signal.	
5				Compare the playback signal level with the specified value. If it satisfies the value, the adjustment is completed.	
6	D	51		If not,: Change the data with the PLAY and STOP buttons. • Decrease the data if the playback signal level is greater than the specified value. • Increase the data if smaller.	
7	D	51		Press the PAUSE button.	
8				Return to step 3.	

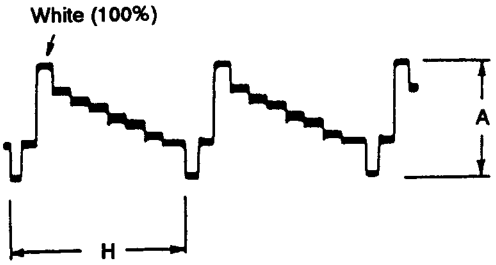


Fig. 9-26.

Related Adjustments:
"Hi8 mode Y FM carrier frequency adjustment".

13. Hi8 mode Y FM carrier frequency adjustment (VC-129 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ㊸ of IC401 (Y RF OUT)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4E (CAR. -E)
Specified Value	5.98 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a ME type tape.	
2	**1**	**00**	**01**	**Release the protect.**	
3	D	4E		Change the data with the PLAY and STOP buttons, and adjust the Y FM carrier frequency to the specified value.	Hi8 ME tape Recording mode, no signal input
4	D	4E		Press the PAUSE button.	

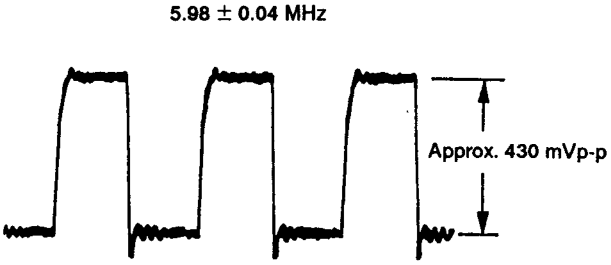
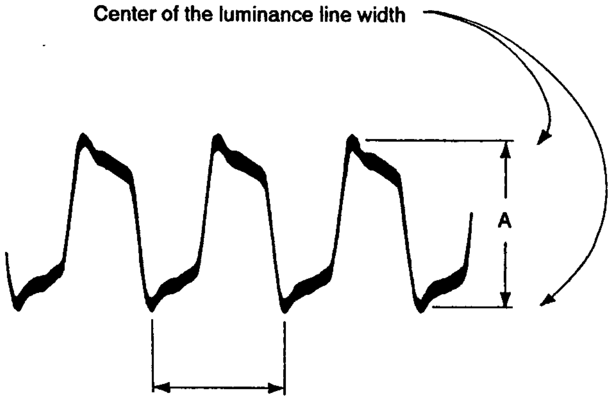


Fig. 9-27.

14. REC Y RF level adjustment (VC-129 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN002 (REC 1A)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	52 (REC Y (ME E)), 53 (REC Y (MP E)), 54 (REC Y (ME L)), 55 (REC Y (MP L))
Specified Value	• ME E mode A=310 ± 5 mVp-p • MP E mode A=290 ± 5 mVp-p • MP L mode A=280 ± 5 mVp-p



E mode (Hi8 mode): Approx. 0.17 μsec.
L mode (Normal mode): Approx. 0.23 μsec.

Fig. 9-28.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Check that the Hi8 switch is at "AUTO" at the menu display.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3				Load a ME tape, and set the recording mode. (Setting the ME E mode)	
4	D	52		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (ME E mode adjustment)	Hi8 ME tape, recording mode
5	D	52		Press the PAUSE button.	
6	D	54		Set the same data as address 52, and press the PAUSE button. (ME L mode adjustment)	
7				Load a Hi8 MP tape, and set the recording mode. (Setting the MP E mode)	
8	D	53		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (MP E mode adjustment)	Hi8 MP tape, recording mode
9	D	53		Press the PAUSE button.	
10				Load a normal MP tape, and set the recording mode. (Setting the MP L mode)	
11	D	55		Change the data with the PLAY and STOP buttons, and adjust the REC Y RF level (A) to the specified value. (MP L mode adjustment)	Normal MP tape, recording mode
12	D	55		Press the PAUSE button.	

15. Chroma emphasis f0 adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ㉔ of IC404 (JL402)
Measuring Instrument	Oscilloscope
Adjustment Page	FL405
Adjustment Address	Minimum f_0 components

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Minimize the amplitude of the rear part of the yellow section of the chroma signal with FL405.	

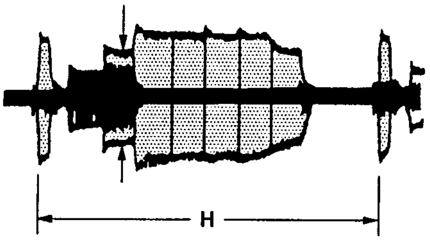

Minimize the amplitude of the rear part of the yellow section
H

Fig. 9-29.

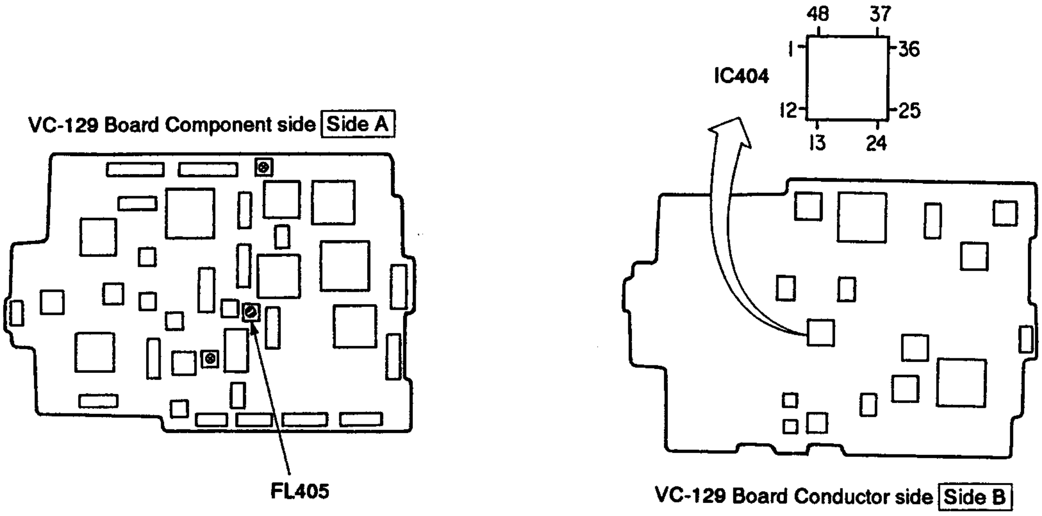

48
37
1
36
IC404
12
25
13
24
VC-129 Board Component side Side A
FL405
VC-129 Board Conductor side Side B

Fig. 9-30.

16. REC C RF level adjustment (VC-129 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ③ of IC405 (REC C RF) (JL029)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	8C (REC C RV)
Specified Value	A=66 ± 2 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	8C		Change the data with the PLAY and STOP buttons, and adjust the amplitude (A) of the flat section of the "red" of the REC C RF signal to the specified value.	Recording mode
3	D	8C		Press the PAUSE button.	

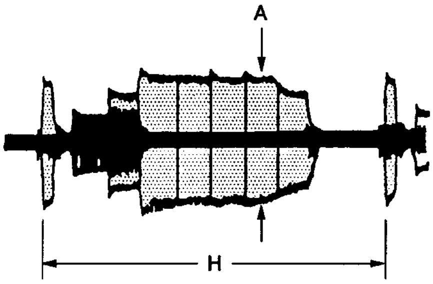


Fig. 9-31.

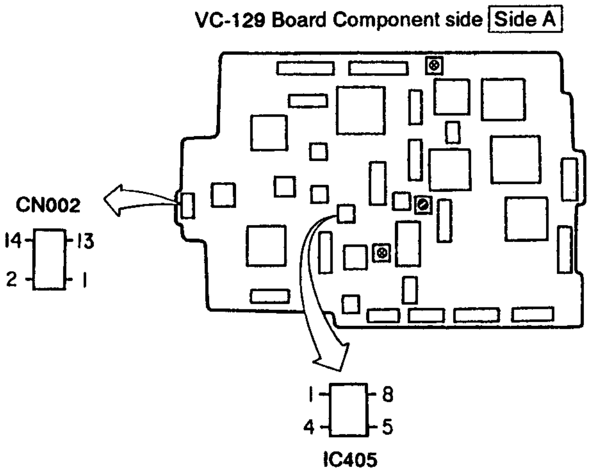


Fig. 9-32.

Related Adjustments:
"REC preset adjustment", "Hi8 MP tape REC C level adjustment", "Normal MP tape REC C level adjustment", "Chroma flicker check and adjustment".

17. REC C preset adjustment (VC-129 board)

Mode	Record
Signal	Color bar
Measurement Point	CH1 (1:1 probe) CH1a: Pin ⑦ of CN002 CH2a: Pin ⑧ of CN002 CH1b: Pin ⑤ of CN002 CH2b: Pin ⑥ of CN002 CH2 (10:1 probe) Video output terminal
Measuring Instrument	Oscilloscope TRIGGER SOURCE: CH2
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	A=60 ± 2 mVp-p

Note: Use a ME type tape. Check that the "Hi8" switch is at "AUTO" at the menu display.

Connection:

1) Remove CN801 of the AU-146 board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

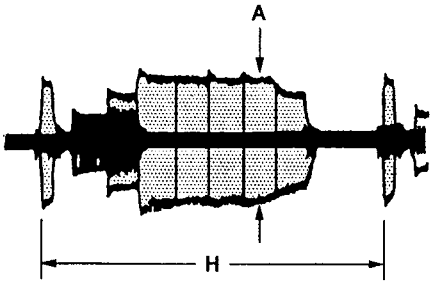
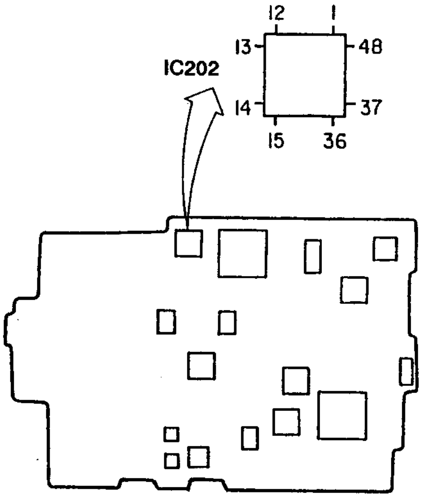


Fig. 9-33.



VC-129 Board Conductor side Side B

Fig. 9-34.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4				Connect the CH1 probe of the oscilloscope (REC 1a) to Pin ⑦ of CN007.	
5	D	30		Change the data with the PLAY and STOP buttons, and adjust the CH1a REC C level (A) to the specified value.	Hi8 ME tape, recording mode
6	D	30		Press the PAUSE button.	
7	D	32 34 36		Adjust the REC C level of CH2a (address 34), CH1b (address 32) and CH2b (address 36) respectively in the same way.	Hi8 ME tape, recording mode
8	D	31		Set the same data as address 30, and press the PAUSE button.	
9	D	33		Set the same data as address 32, and press the PAUSE button.	
10	D	35		Set the same data as address 34, and press the PAUSE button.	
11	D	37		Set the same data as address 36, and press the PAUSE button.	
12	D	52		Set the data noted down at step 2, and press the PAUSE button.	

Related Adjustments:
"Hi8 MP tape REC C level adjustment", "Normal MP tape REC C level adjustment".

18. Hi8 MP tape REC C level adjustment (VC-129 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	85 (ME CONT (MP E)) 89 (ME CONT (MP E LP))
Specified Value	A=40 ± 1.5 mVp-p

Note: Use a Hi8 MP type tape. Check that the Hi8 switch is at "AUTO" at the menu display.

Connection:

1) Remove CN801 of the AU-146 board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a Hi8 MP tape, and set the recording mode.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	53		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
4	D	53		Press the PAUSE button.	
5	D	85		Change the data with the PLAY and STOP buttons, and adjust the REC C RF level (A) to the specified value.	Hi8 MP tape, recording mode
6	D	85		Press the PAUSE button.	
7	D	53		Set the data noted down at step 2, and press the PAUSE button.	
8	D	89		Adjust to the same data as address 85, and press the PAUSE button.	

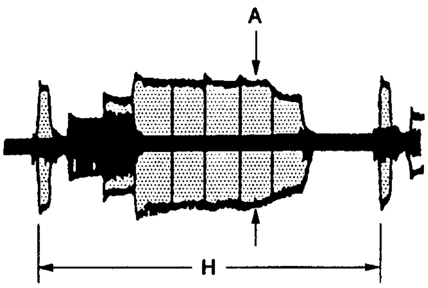


Fig. 9-35.

19. Normal MP tape REC C level adjustment (VC-129 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	Pin ⑦ of CN002 (REC 1a)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	87 (ME CONT (MP L)) 8B (ME CONT (MP L LP))
Specified Value	A=50 ± 2.0 mVp-p

Note: Use a normal MP type tape.

Connection:
1) Remove CN801 of the AU-146 board.
2) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Load a normal MP tape, and set the recording mode.	
2	**1**	**00**	**01**	**Releasing of protect.**	
3	D	55		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
4	D	55		Press the PAUSE button.	
5	D	87		Change the data with the PLAY and STOP buttons, and adjust the REC C RF level (A) to the specified value.	Normal MP tape, recording mode
6	D	87		Press the PAUSE button.	
7	D	55		Set the data noted down at step 2, and press the PAUSE button.	
8	D	8B		Adjust to the same data as address 87, and press the PAUSE button.	

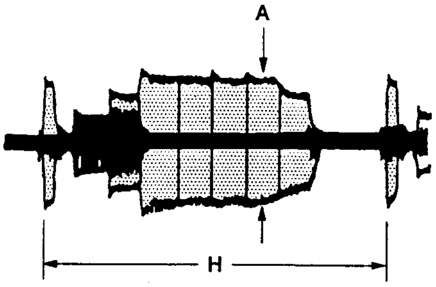


Fig. 9-36.

20. REC ATF level check (VC-129 board)

Mode	Record (SP)
Signal	No signal
Measurement Point	CH1a: (⑦ of CN002), CH2a: (⑧ of CN002), CH1b: (⑤ of CN002), CH2b: (⑥ of CN002)
Measuring Instrument	Oscilloscope
Specified Value	A=9.5 ± 2.0 mVp-p

Note: Use a Hi8 MP type tape. Check that the "Hi8" switch is at "AUTO" at the menu display.

Connection:
1) Remove CN801 of the AU-146 board.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4				Check that the REC ATF signal level (A) satisfies the specified value for CH1a to CH2b.	Hi8 ME tape, recording mode
5	D	52		Set the data noted down at step 2, and press the PAUSE button.	

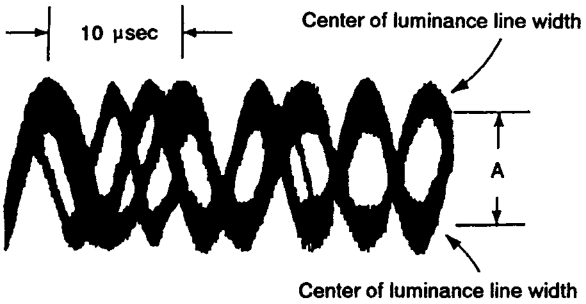

10 μsec
Center of luminance line width
A
Center of luminance line width

Fig. 9-37.

21. Chroma flicker check and adjustment (VC-129 board)

Mode	Self record/playback (LP)
Signal	Color bar
Measurement Point	CH-1 (1:1 probe): Pin ㊷ of IC404 (PBC RF IN) CH-2 (10:1 probe): Pin ⑩ of CN002 ($\overline{1/2\ \mathrm{RF\ SWP}}$)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	30 (REC C 1A (ME)), 31 (REC C 1A (MP)), 32 (REC C 1B (ME)), 33 (REC C 1B (MP)), 34 (REC C 2A (ME)), 35 (REC C 2A (MP)), 36 (REC C 2B (ME)), 37 (REC C 2B (MP))
Specified Value	$\frac{Vc1a}{Vc1b} \times 100 = 100^{+12}_{-11}$ (%) $\frac{Vc2a}{Vc2b} \times 100 = 100^{+12}_{-11}$ (%)

Note 1: Check that "REC C preset adjustment" and "REC ATF level check" have been completed.

Note 2: Use a ME type tape and check that the "Hi8" switch is at "AUTO" at the menu display.

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1				Record the color bar signal.	Hi8 ME tape, recording mode
2				Play back the recorded section.	
3				Measure the playback levels of channels 1a, 1b, 2a, 2b, and take them as Vc1a, Vc1b, Vc2a, Vc2b respectively.	Playback mode
4				Check that the specified values have been satisfied. If not, perform the following adjustments.	

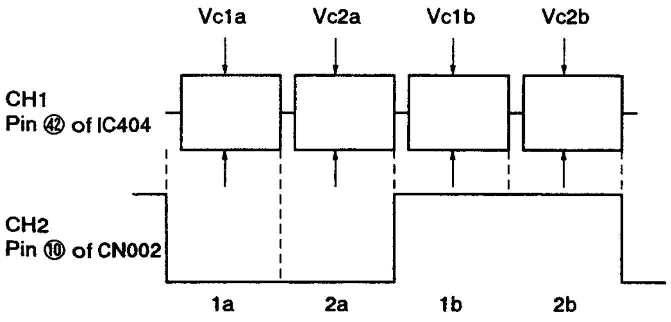
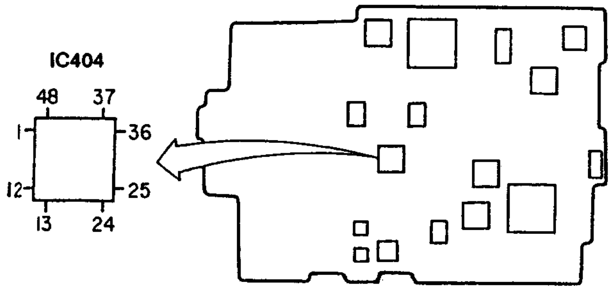


Fig. 9-38.

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1				Calculate Δ Vc1 and Vc2 from the values obtained at step 3 of "Checking Method" using the following equation. $\Delta \text{Vc1} = \lvert \text{Vc1a} - \text{Vc1b} \rvert /2$ $\Delta \text{Vc2} = \lvert \text{Vc2a} - \text{Vc2b} \rvert /2$ **Note:** $\lvert\ \rvert$ shows the absolute value.	
2				Calculate the new specification values for "REC C preset adjustment" using the following equation. The smaller value when the playback levels are Vc1a and Vc1b is $\left\{\frac{\text{(The smaller value of Vc1a and Vc1b)} + \Delta\text{Vc1}}{\text{(The smaller value of Vc1a and Vc1b)}}\right\} \times 60\text{(mVp-p)}$ The greater value when the playback levels are Vc1a and Vc1b is $\left\{\frac{\text{(The greater value of Vc1a and Vc1b)} + \Delta\text{Vc1}}{\text{(The greater value of Vc1a and Vc1b)}}\right\} \times 60\text{(mVp-p)}$ The smaller value when the playback levels are Vc2a and Vc2b is $\left\{\frac{\text{(The smaller value of Vc2a and Vc2b)} + \Delta\text{Vc2}}{\text{(The smaller value of Vc2a and Vc2b)}}\right\} \times 60\text{(mVp-p)}$ The greater value when the playback levels are Vc2a and Vc2b is $\left\{\frac{\text{(The greater value of Vc2a and Vc2)} + \Delta\text{Vc2}}{\text{(The greater value of Vc2a and Vc2b)}}\right\} \times 60\text{(mVp-p)}$	
3				Perform "REC C preset adjustment" taking the values calculated from Vc1a, Vc1b, Vc2a, Vc2b at step 2 as the specified values for 1a, 1b, 2a, and 2b respectively.	
4				After the adjustment, perform "Chroma flicker check" again, and repeat the adjustment until the specified values are satisfied.	



VC-129 Board Conductor side Side B

Fig. 9-39.

22. REC AFM level check (VC-129 board)

Mode	Record (SP)
Signal	No signal
Measurement Point	CH1a: (Pin ⑦ of CN002), CH2a: (Pin ⑧ of CN002), CH1b: (Pin ⑤ of CN002), CH2b: (Pin ⑥ of CN002)
Measuring Instrument	Oscilloscope
Specified Value	A=15.0 ± 2.5 mVp-p

Note 1: Use a Hi8 MP type tape, and check that the "Hi8" switch is at "AUTO".

Note 2: Do not insert anything into the right audio input terminal.
(Monaural recording mode)

Connection:
1) Connect Pin ⑨ of IC202 and GND with a 0.01 μF capacitor (1-101-004-00).

Checking method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	52		Note down the data, and set the data to 00. (Minimizing the REC Y RF level)	
3	D	52		Press the PAUSE button.	
4	D			Check that the REC AFM signal level (A) satisfies the specified value for CH1a to CH2a.	Hi8 MP tape, recording mode
5	D	52		Set the data noted down at step 2, and press the PAUSE button of the adjusting remote commander.	

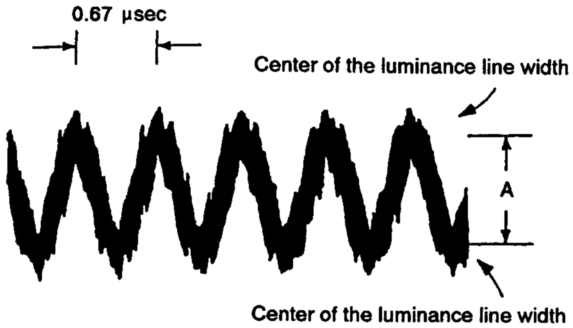

0.67 μsec
Center of the luminance line width
A
Center of the luminance line width

Fig. 9-40.

23. Chroma comb filter fine adjustment (VC-129 board)

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section
Measurement Point	Video input/output terminal
Measuring Instrument	Vectorscope
Adjusting Element	RV551
Adjustment Page	D
Adjustment Address	4C (C COMB)
Specified Value	Minimum color luminance point movement when the "Edit" switch is turned on/off

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Minimize the movements of the color luminance point when the edit is on/off with RV551.	Playback mode
3	D	4C		Change the data with the PLAY and STOP buttons, and minimize the movements of the color luminance point when the edit is on/off.	Playback mode
4	D	4C		Press the PAUSE button.	
5				Repeat steps 2 to 4.	

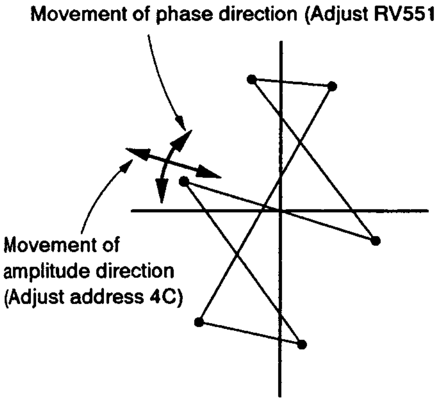

Movement of phase direction (Adjust RV551)
Movement of amplitude direction (Adjust address 4C)

Fig. 9-41.

24. Delay burst phase adjustment (VC-129 board)

Mode	Playback pause
Signal	Alignment tape: For operation check (WR5-4CL) Color bar section
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	D
Adjustment Address	67 (PAL JOG)
Specified Value	Minimum shaking of yellow and blue luminance points

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	67		Change the data with the PLAY and STOP buttons, and minimize the shaking of yellow and blue luminance points.	Playback pause mode
3	D	67		Press the PAUSE button.	

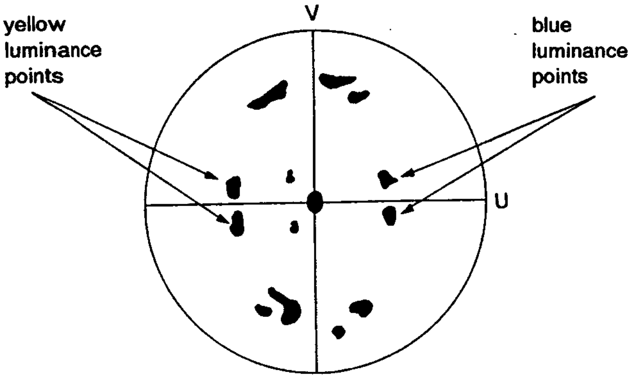


Fig. 9-42.

25. Character generator oscillation frequency adjustment (VC-129 board)

Mode	STOP
Signal	Arbitrary
Measurement Point	Pin ⑦ of IC905
Measuring Instrument	Frequency counter
Adjustment Page	CT901
Adjustment Address	6.75 ± 0.04 MHz

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	2	00	01	Specification of page 2 category 01	
2	2	3D	01	Setting of continuous oscillation mode	
3				Adjust the oscillation frequency to the specified value with CT901.	Continuous oscillation mode

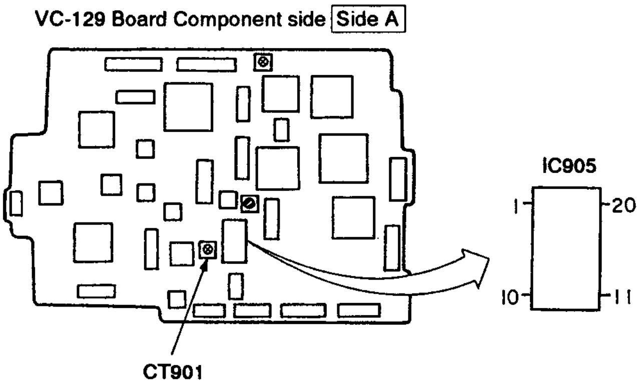


Fig. 9-43.

9-7. AUDIO SYSTEM ADJUSTMENT

- Adjust using the color bar signal as the video signal input.
- Unless specified otherwise, use the Hi8 ME tape.

[Connecting the measuring equipments for audio]

In addition to the measuring equipments for the video system, connect the measuring equipments for the audio system as shown in Fig. 9-40, and adjust with the power supply switch at "Player". Set the HiFi SOUND switch of the menu screen to "OFF" unless specified otherwise.

Note: 1) When inputting the audio signal, input the same signal to both the L and R channels, unless specified otherwise.

2) Be sure to insert the plug (shorting plug or dummy plug, etc.,) into the audio output terminal (right). If the plug is not inserted, the monaural mode will be set, and correct adjustments cannot be carried out.

(Monaural mode)

During recording······REC AFM RF 1.7 MHz carrier will not be output.

During playback ······The L+R signal will be output from the audio output terminal (left).

3) Adjustments for channel R in adjustments for both channels L and R are in the [ ].

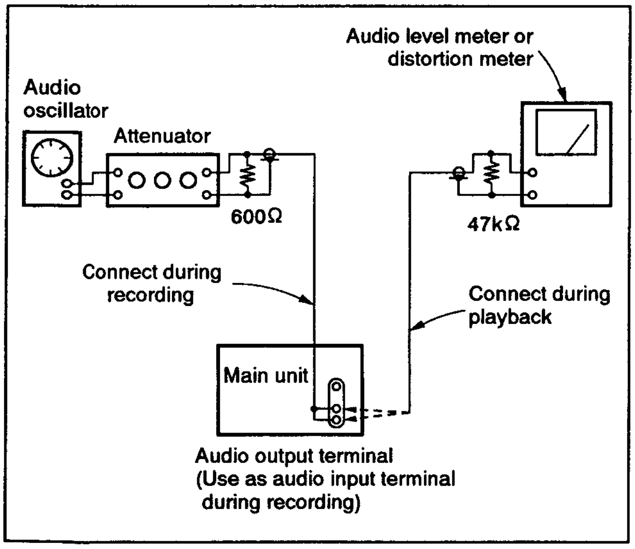

Audio level meter or distortion meter
Audio oscillator
Attenuator
600Ω
47kΩ
Connect during recording
Connect during playback
Main unit
Audio output terminal (Use as audio input terminal during recording)

Fig. 9-44.

[Adjusting Procedure]

1) 1.5 MHz carrier frequency check
2) 1.7 MHz carrier frequency check
3) 1.5 MHz recording level check
4) 1.7 MHz recording level check
5) E-E output level check
6) REC matrix L–R adjustment
7) REC matrix L+R check
8) IR adjustment
9) 1.5 MHz deviation adjustment
10) 1.7 MHz deviation adjustment
11) PB matrix L adjustment
12) PB matrix R check
13) Overall level characteristics, distortion rate check
14) Separation check
15) Overall noise level check

1. 1.5 MHz carrier frequency check (AU-146 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC801
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.500 ± 0.002 MHz

Note: Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.

2. 1.7 MHz carrier frequency check (AU-146 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC804
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.700 ± 0.002 MHz

Note: 1) Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.
2) Insert a shorting plug into the right audio input terminal.

3. 1.5 MHz record level check (AU-146 board)

Mode	Record (Monaural)
Signal	No signal
Measurement Point	Pins ⑦ of CN801 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	A=34 ± 4 mVp-p

Note: Do not insert the plug into the right audio input terminal.

Checking method:

Order	**Procedure**
1	Read the center of the luminance line width and note down the read level.

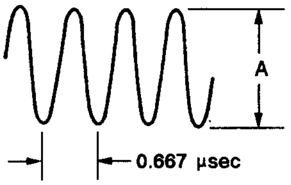


Fig. 9-45.

4. 1.7 MHz recording level check (AU-146 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑦ of CN801 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	$\frac{\text{1.7 MHz carrier level}}{\text{1.5 MHz carrier level}} = 0.80 \pm 0.12$

Note: Insert a shorting plug into the right audio input terminal.

Connection:

1) Remove C885 (0.01 μF) and check. After checking, connect a new capacitor.

Checking method:

Order	**Procedure**
1	Check that the 1.7 MHz carrier level is 0.80 ±0.12 times that of the 1.5 MHz carrier.

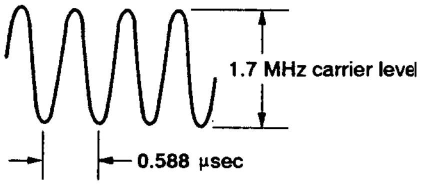
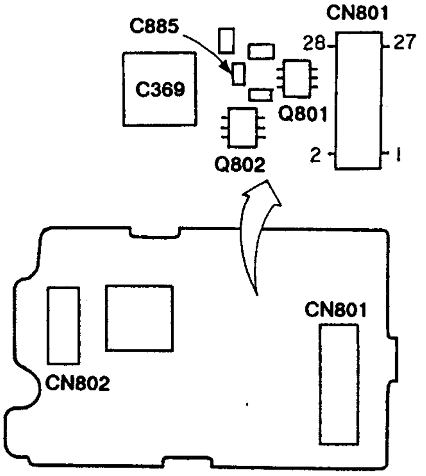


Fig. 9-46.



AU-146 Board Conductor side

Fig. 9-47.

5. E-E output level check (AU-146 board)

Mode	Record
Signal	400 Hz, –7.5 dBs right audio input terminal [left]
Measurement Point	Pin ⑲ of IC801 [Pin ⑲ of IC803]
Measuring Instrument	Oscilloscope
Specified Value	925^{+240}_{-190} mVp-p (–7.5 ± 2 dBs)

6. REC matrix L–R adjustment (AU-146 board)

Mode	Record
Signal	400 Hz, –7.5 dBs Input to both left and right terminals of the audio input terminal
Measurement Point	Pin ㉛ of IC804
Measuring Instrument	Oscilloscope (Use 1:1 probe)
Adjustment Page	D
Adjustment Address	78 (REC/PB MX (REC))
Specified Value	0 ± 5 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	78		Change the data with the PLAY and STOP buttons, and minimize the 400 Hz signal level.	
3	D	78		Press the PAUSE button.	

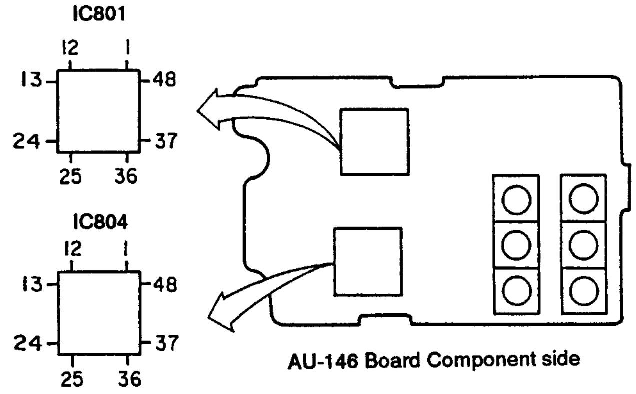


Fig. 9-48.

7. REC matrix L+R check (AU-146 board)

Mode	Record
Signal	1. 400 Hz, -7.5 dBs : Audio input terminal (left) No signal: Audio input terminal (right) 2. No signal: Audio input terminal (left) 400 Hz, -7.5 dBs: Audio input terminal (right)
Measurement Point	Pin ㉛ of IC801
Measuring Instrument	Oscilloscope
Adjustment Page	The level difference when the signal is input to only the left terminal and when the signal is input to only the right terminal should be 0 ± 10 mVp-p.

Note: When measuring the signal level of Pin ㉛ of IC801, wait for more than 1 minute after signal input before measuring. (To regulate the AGC.)

Checking method:

Order	**Page**	**Address**	**Data**	**Procedure**	**Conditions**
1				Input the 400 Hz, -7.5 dBs signal only to the left audio input terminal. (Insert the shorting plug to the right audio input terminal.)	
2				Read the 400 Hz signal level of Pin ㉛ of IC801, and note it down. (Approximately 200 mVp-p)	Input signal to left channel only
3				Input the 400 Hz, -7.5 dBs signal only to the right audio input terminal. (Insert the shorting plug to the left audio input terminal.)	
4				Check that the 400 Hz signal level of Pin ㉛ of IC801 is (the value noted down at step 2) ± 10 mVp-p.	Input signal to right channel only

8. IR adjustment (AU-146 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS)
Measurement Point	Pins ㊹ and ⑥ of IC801 (1.5 MHz IR) Pins ㊹ and ⑥ of IC804 (1.5 MHz IR)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7A (1.5 IR), 7C (1.7 IR)
Specified Value	The DC voltage difference between Pins ㊹ and ⑥ should be 0 ± 10 mVdc

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Measure the DC voltage of Pin ㊹ of IC801. (Approx. 2100 mVdc)	
3	D	7A		Change the data with the PLAY and STOP buttons, and equalize the DC voltage of Pin ⑥ of IC801 and that of Pin ㊹ of IC801. (Voltage difference below 10 mVdc.)	WR5-9CS playback mode
4	D	7A		Press the PAUSE button.	
5				Measure the DC voltage of Pin ㊹ of IC804. (Approx. 2100 mVdc)	
6	D	7C		Change the data with the PLAY and STOP buttons, and equalize the DC voltage of Pin ⑥ of IC804 to that of Pin ㊹ of IC804. (Voltage difference below 10 mVdc.)	WR5-9CS playback mode
7	D	7C		Press the PAUSE button.	

9. 1.5 MHz deviation adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5CSP)
Measurement Point	Left or right audio output terminal
Measuring Instrument	Oscilloscope, level meter
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	-7.5 ± 0.5 dBs

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2	D	7B		Change the data with the PLAY and STOP buttons, and adjust the 400 Hz signal level to the specified value.	WR5-5CSP playback mode
3	D	7B		Press the PAUSE button.	

Related Adjustments:
"PB matrix L adjustment".

10. 1.7 MHz deviation adjustment (AU-146 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS) Bilingual (Monoscope) section
Measurement Point	1. Pin ㉝ of IC801 2. Pin ㉝ of IC804
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7D (1,7 DEV)
Specified Value	8 ± 0.05 graduation

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Connect the oscilloscope to Pin ㉝ of IC801.	
3				Adjust the 400 Hz signal amplitude to the 8.0 scale using the VOLT/DIV knob of the oscilloscope.	WR5-9CS playback mode
4				Connect the oscilloscope to Pin ㉝ of IC804.	
5	D	34		Change the data with the PLAY and STOP buttons, and adjust the amplitude of the 1 kHz signal to the 8 ± 0.05.	WR5-9CS playback mode
6	D	34		Press the PAUSE button.	

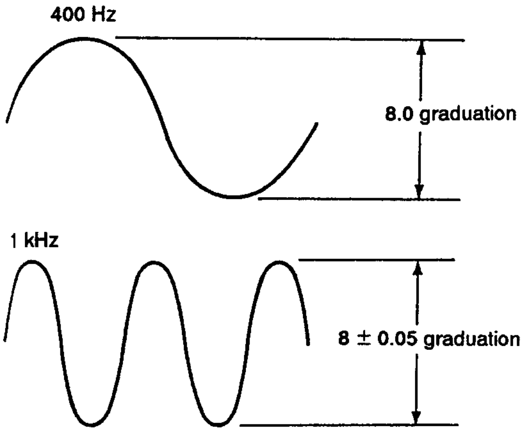


Fig. 9-49.

Related Adjustments:
"PB matrix L adjustment".

11. PB matrix L adjustment

Mode	Self record/playback
Signal	No signal: Audio input terminal (left) 400 Hz, –7.5 dBs: Audio input terminal (right)
Measurement Point	Pin ⑲ of IC801
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	79 (REC/PB MX (PB))
Specified Value	Below 20 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure	Conditions
1	**1**	**00**	**01**	**Releasing of protect.**	
2				Input the 400 Hz, –7.5 dBs signal only to the right audio input terminal. (Insert the shorting plug to the left audio input terminal.)	
3				Record.	Input audio signal to right channel only
4				Remove the input signal.	
5				Play back the recorded section.	
6	D	79		Change the data with the PLAY and STOP buttons, and minimize the cross talk component (400 Hz).	
7	D	79		Press the PAUSE button.	

12. PB matrix R check

Mode	Self record/playback
Signal	400 Hz, –7.5 dBs: Audio input terminal (left) No signal: Audio input terminal (right)
Measurement Point	Pin ⑲ of IC804
Measuring Instrument	Oscilloscope
Specified Value	Below 30 mVp-p

Checking method:

Order	Procedure	Conditions
1	Input the 400 Hz, –7.5 dBs signal only to the left audio input terminal. (Insert the shorting plug to the right audio input terminal.)	
2	Record.	Input audio signal to left channel only.
3	Remove the input signal.	
4	Play back the recorded section.	
5	Check that the cross talk component (400 Hz) is below 30 mVp-p.	

13. Overall level characteristics, distortion rate check

Mode	Self record/playback
Signal	400 Hz, –7.5 dBs: Left audio input terminal [right] No signal: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: –7.5 ± 2 dBs Distortion rate: Below 1.5% (Note 2)

Note: 1) The [ ] contains points to be measured when checking the right channel.
2) Value when the 200Hz to 6 kHz band pass filter is used.

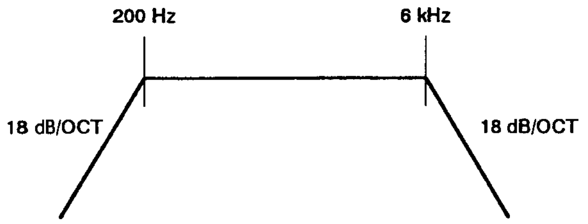


Fig. 9-50.

Checking method:

Order	Procedure
1	Input the 400 Hz, –7.5 dBs signal only to the left audio input terminal [right]. Note: Be sure to insert the shorting plug to the terminal of non-signal input.
2	Record the signal.
3	Remove the input signal, and playback the recorded section.
4	Check that the 400 Hz signal level of the left audio output terminal [right] is –7.5 ± 2 dBs, and that the distortion rate is below 1.5% (Note 2).

14. Separation check

Mode	Self recording/playback
Signal	No signal: Left audio input terminal [right] 400 kHz, –7.5 dBs: Right audio input terminal [left]
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below -27.5 dBs

Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

Order	Procedure
1	Insert a shorting plug into the left audio input terminal [right], and input a 1 kHz, –7.5 dBs signal only to the right audio input terminal [left].
2	Record the signal.
3	Remove the input signal.
4	Play back the recorded section.
5	Check that the cross talk level (1 kHz) of the left audio output terminal [right] is below –27.5 dBs.

15. Overall noise level check

Mode	Self record/playback
Signal	No signal: Left and right audio output terminals
Measurement Point	Left audio output terminal [right]
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below –62.5 dBs

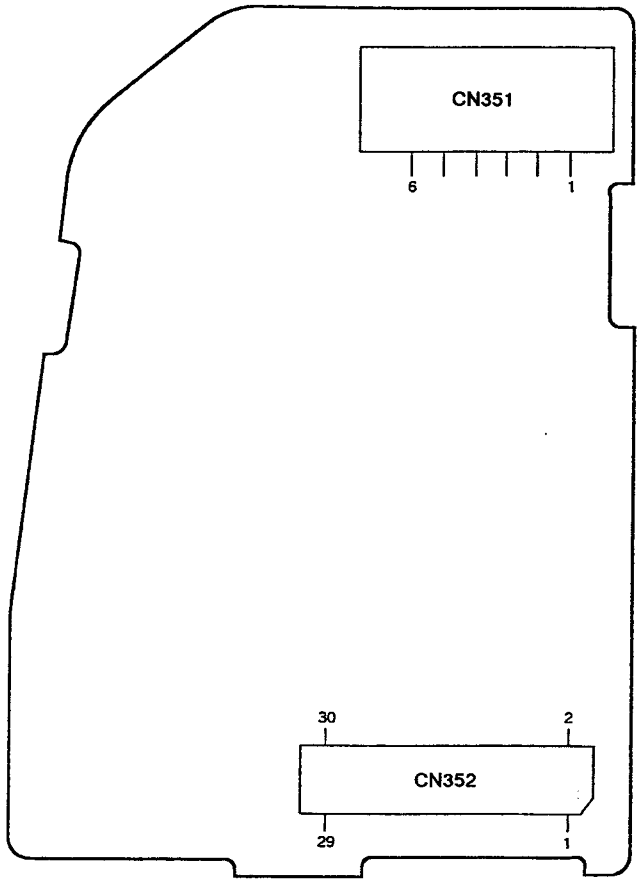
Note: The [ ] contains points to be measured when checking the right channel.

Checking method:

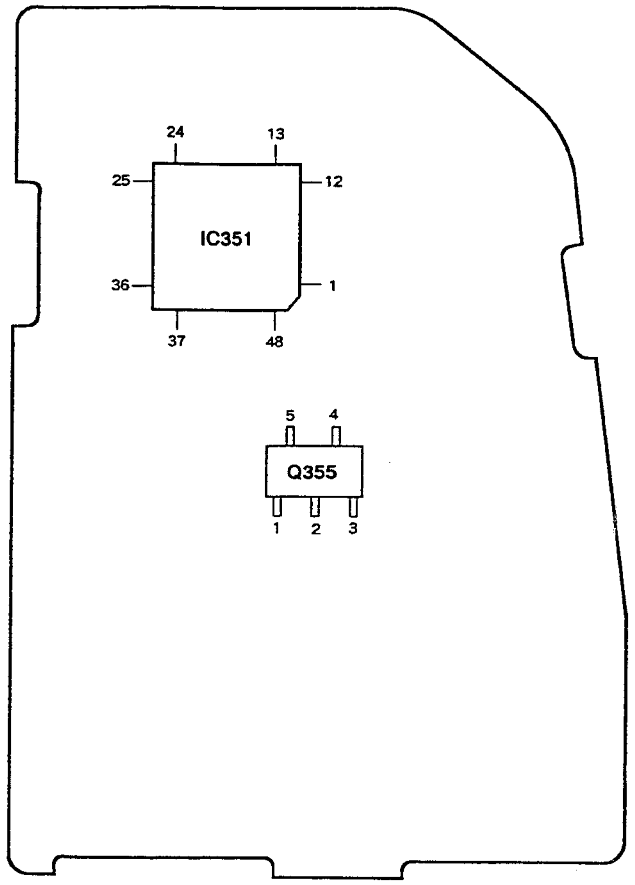
Order	Procedure
1	Insert the shorting plug to both the left and right audio input terminals.
2	Record.
3	Remove the shorting plug.
4	Play back the recorded section.
5	Check that the noise level of the left audio output terminal [right] is below –62.5 dBs.

9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

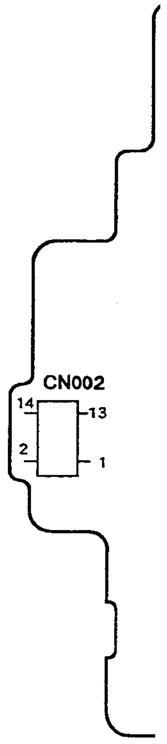
DD-54 BOARD (COMPONENT SIDE)



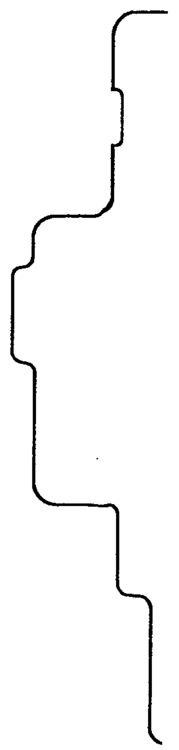
DD-54 BOARD (CONDUCTOR SIDE)



VC-129 BOA



VC-129 BOA



[right]

[left]

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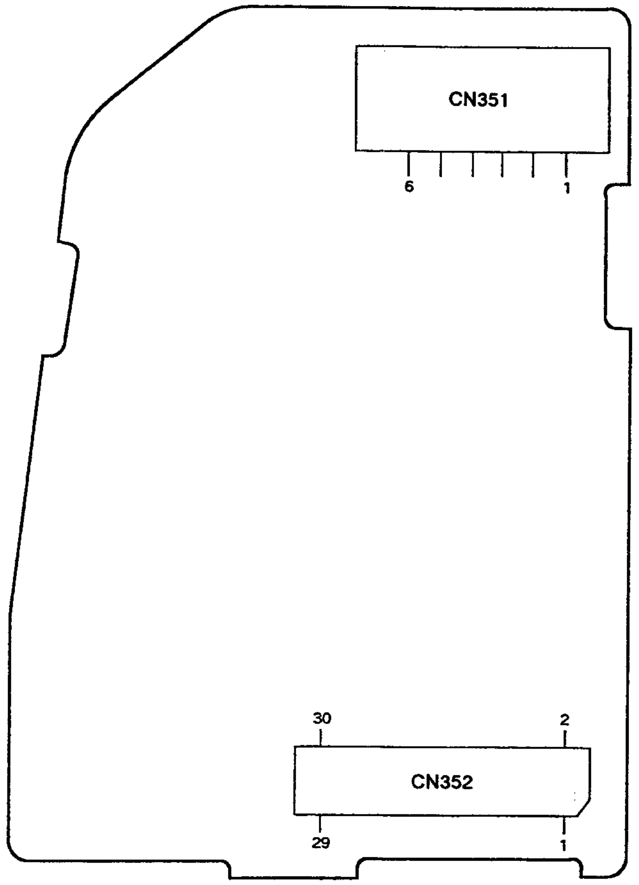
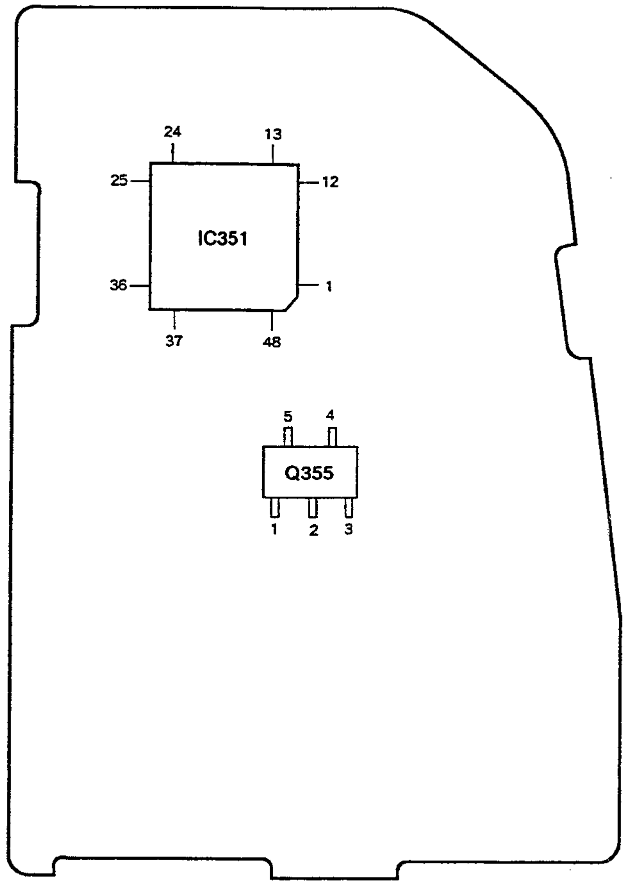
9-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

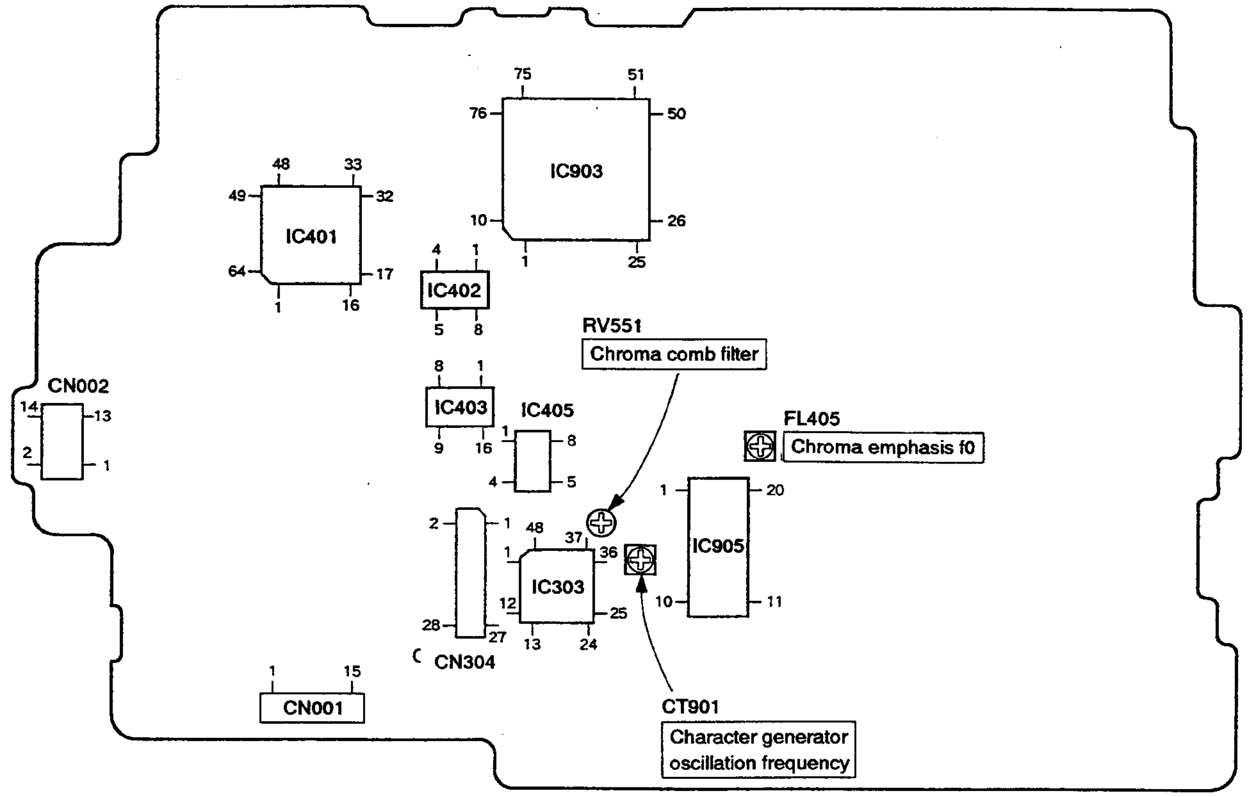
DD-54 BOARD (COMPONENT SIDE)


CN351
6
1
30
2
CN352
29
1

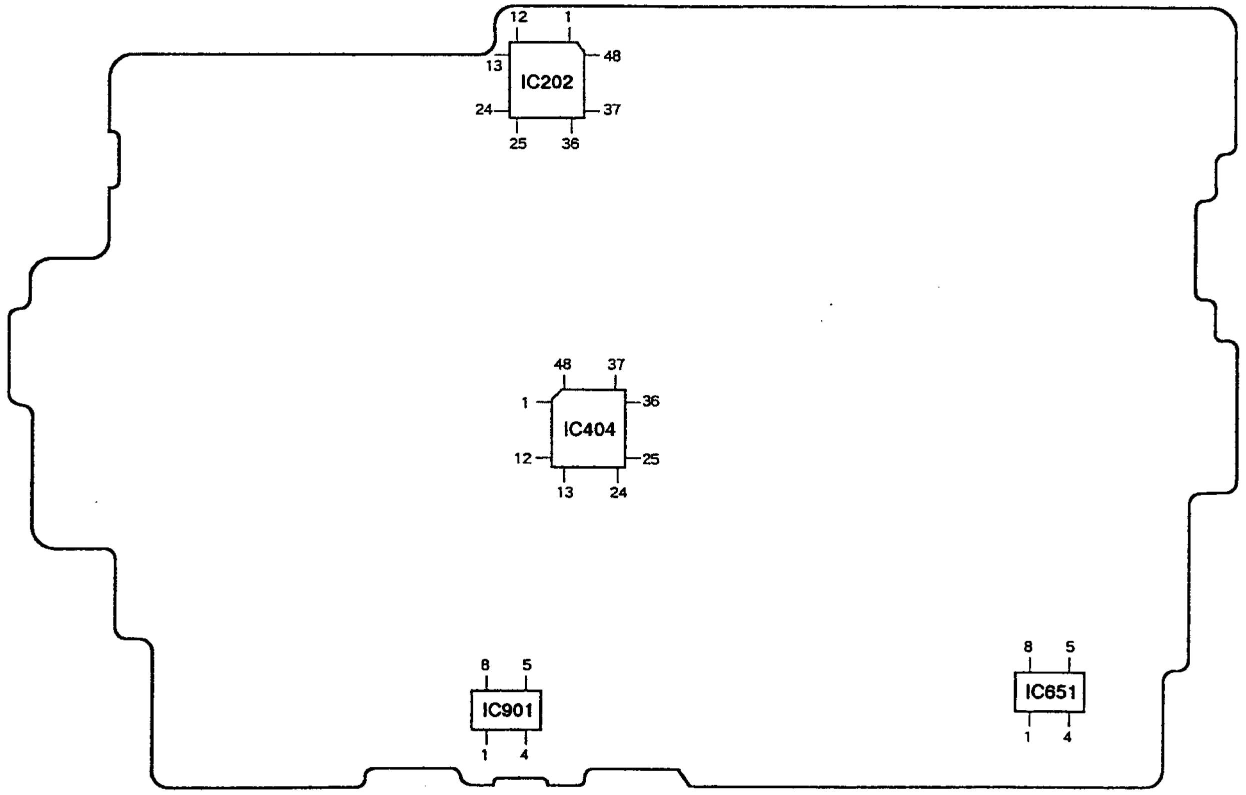
DD-54 BOARD (CONDUCTOR SIDE)


24
13
25
12
IC351
36
1
37
48
5
4
Q355
1
2
3

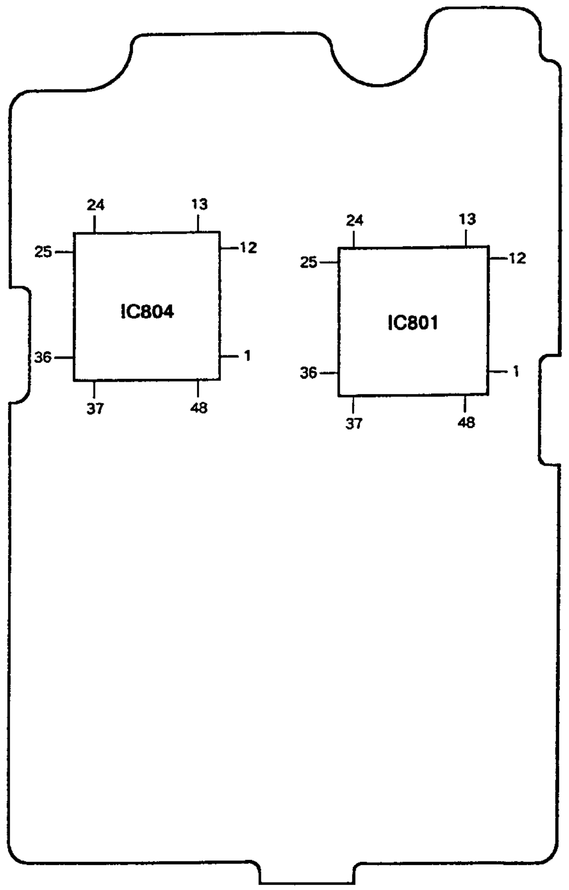
VC-129 BOARD (COMPONENT SIDE) A SIDE


75
51
76
50
IC903
10
26
1
25
48
33
49
32
IC401
64
17
1
16
4
1
IC402
5
8
RV551
Chroma comb filter
8
1
IC403
9
16
IC405
1
8
4
5
CN002
14
13
2
1
FL405
Chroma emphasis f0
1
20
IC905
10
11
2
1
48
37
1
36
IC303
12
25
28
27
13
24
CN304
1
15
CN001
CT901
Character generator
oscillation frequency

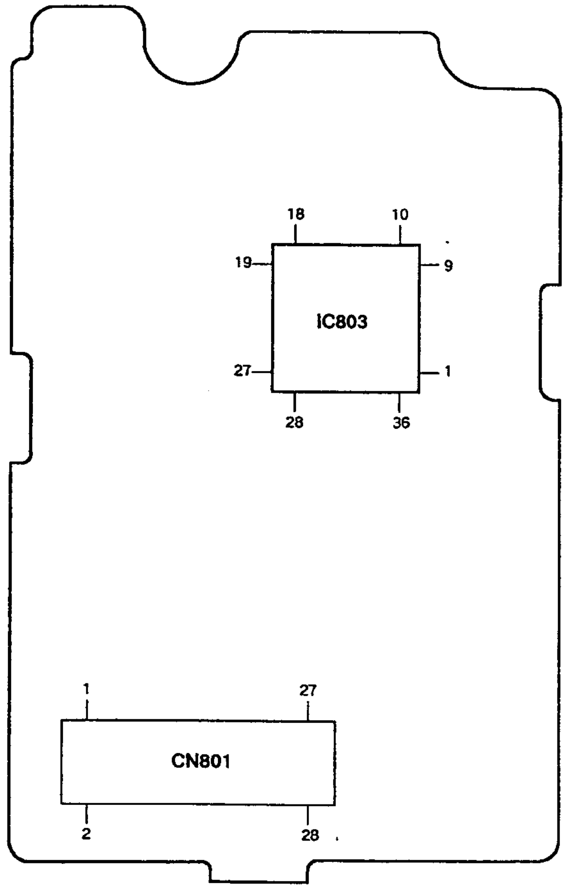
VC-129 BOARD (CONDUCTOR SIDE) B SIDE


12
1
13
48
IC202
24
37
25
36
48
37
1
36
IC404
12
25
13
24
8
5
IC901
1
4
8
5
IC651
1
4

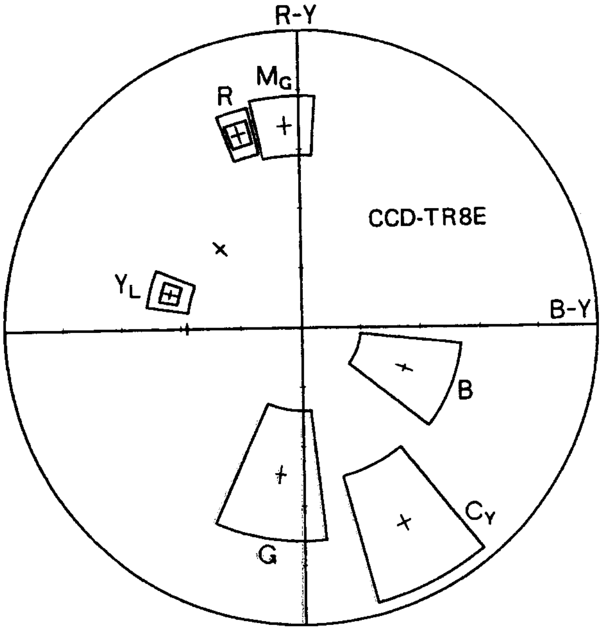
AU-146 BOARD (COMPONENT SIDE)


IC804
24
13
25
12
36
1
37
48
IC801
24
13
25
12
36
1
37
48

AU-146 BOARD (CONDUCTOR SIDE)

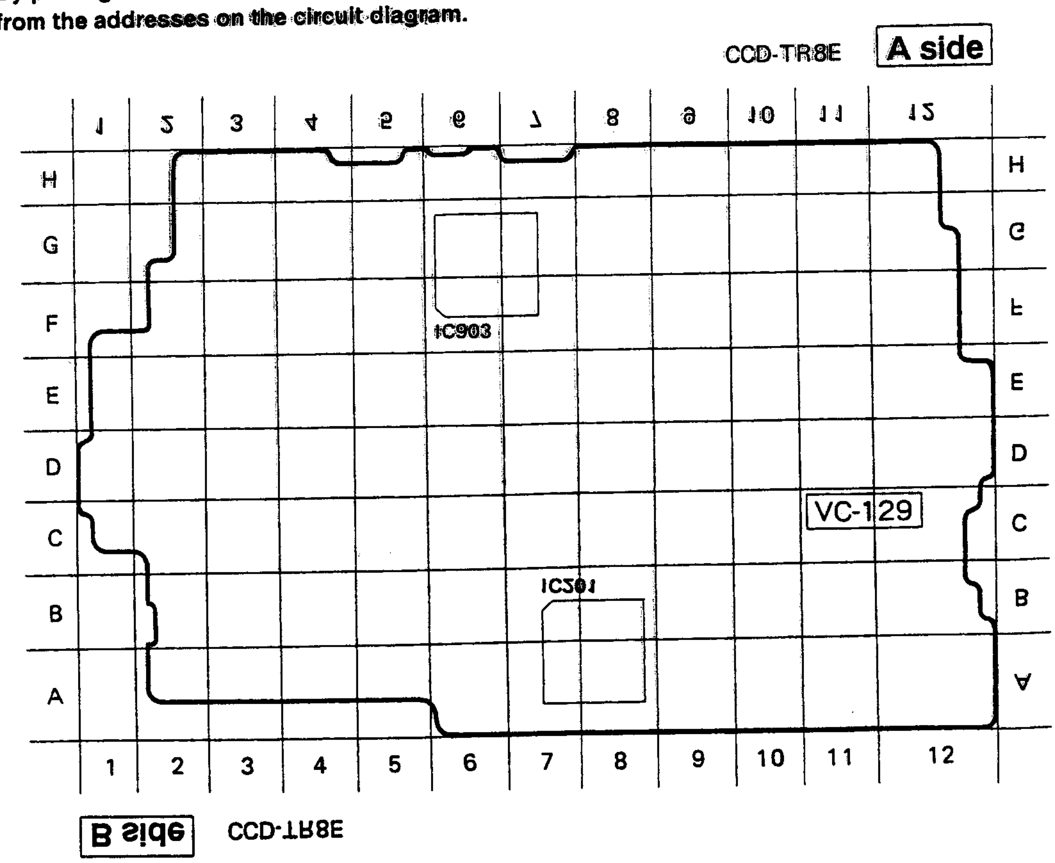

IC803
18
10
19
9
27
1
28
36
CN801
1
27
2
28

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT


R-Y
R
M_G
CCD-TR8E
Y_L
B-Y
B
G
C_Y

[Parts Detection Sheet]

By placing it over the VC-129 board, the positions of the parts can be located from the addresses on the circuit diagram.


CCD-TR8E
A side
1
2
3
4
5
6
7
8
9
10
11
12
H
G
F
E
D
C
B
A
IC903
IC201
VC-129
B side
CCD-TR8E

9-973-319-11

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Personal Video Group

English
92K0986-1
Printed in Germany

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CCD-TR8E
RMT-703

SONY.
SERVICE MANUAL

AEP Model
UK Model
Australian Model
E Model
Tourist Model

CORRECTION-1

Please correct your service manual.

PAGE 225

7-1-6. Page 6, Page 2 Address List

The camera adjustment mode can be set by setting the data in the following table to page 6 or 2. ~~(The data of these pages can be set temporarily. When the main power supply (6.3V) is turned off, the original values (normal value) are returned. Therefore, these adjustment modes can be released easily by turning off the main power supply.)~~ **(Delete)**

(Example) By setting data: 01 to page: 6, address: 00, the write protect of page F, addresses 01 to DF can be released.

PAGE 272

Writes in the EE PROM.
When writing in the EE PROM, writing cannot be carried out if the write protect is released. To release, set the data of ~~page 0,~~ Page 1, **(Correct)** address 00 to 01.

PAGE 276

8. White balance mode switching

Page 2	Category ~~00~~ 01 **(Correct)**	Address 21

PAGE 276

9. Zoom position check

Page 2	Category ~~00~~ 01 **(Correct)**	Address 2B, 2C

PAGE 264

Additional notes on adjustment
After the completion of the all adjustments, cancel the adjustment mode by either of the following ways.

(1) Unplug the main power supply and remove the lithium battery. (In this case, date, time and menu settings have been set by users are canceled. Perform resetting.)
(2) Return data of the address:00 on page:1 to 00. And when data on page:2 is changed, return the data to the original condition.

(Stick it at lower right space.)

Cut along the dotted line.

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9-973-319-91

V13068

CCD-TR8E
RMT-703

SONY
SERVICE MANUAL
SUPPLEMENT-1

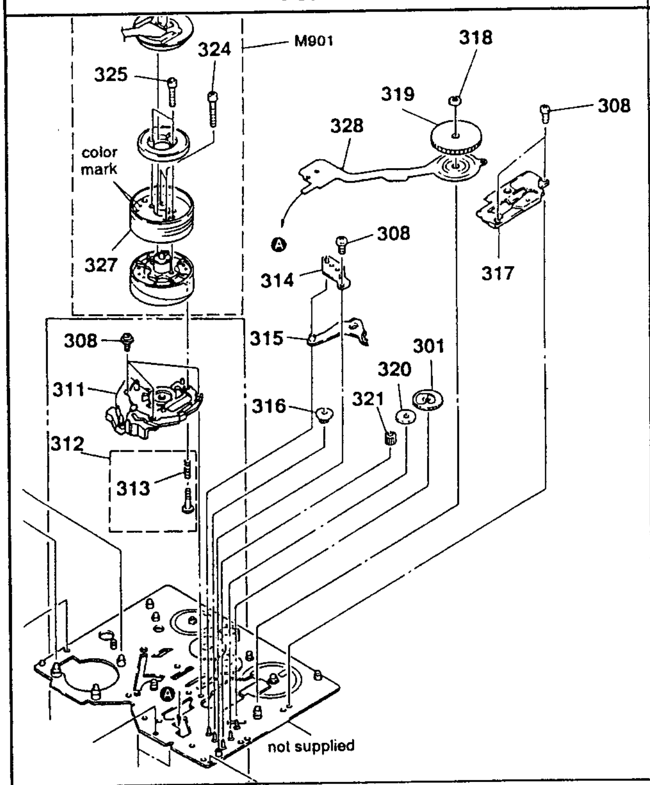
File this supplement with the Service Manual.

AEP Model
UK Model
Australian Model
E Model
Tourist Model

Page. 188 ☛ : Changed portion

5-6. MECHANISM CHASSIS ASSEMBLY

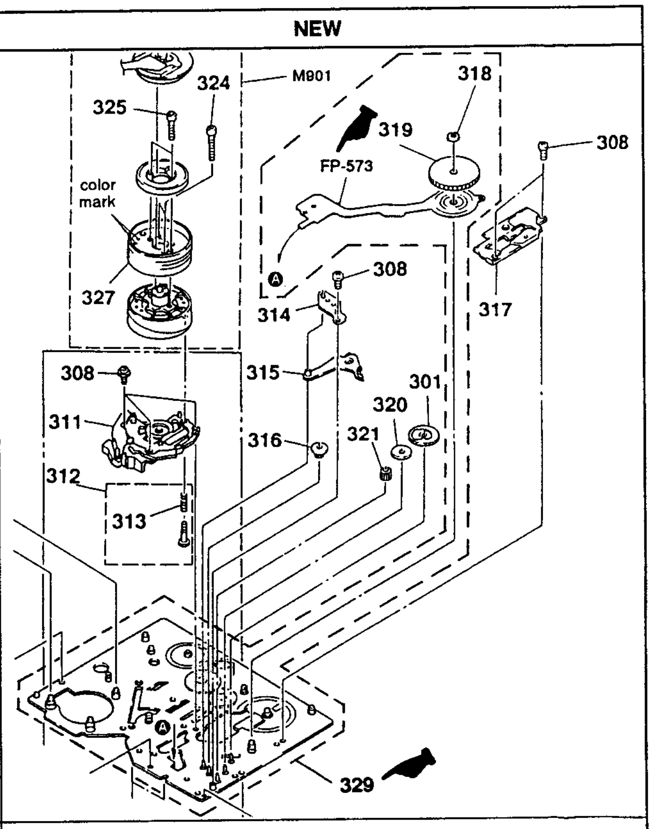
FORMER



324
M901
318
325
319
308
328
color mark
327
A
308
314
317
308
315
301
320
311
316
321
312
313
A
not supplied

Ref. No.	Part No.	Description
328	1-645-056-12	FP-573 FLEXIBLE BOARD

NEW



324
M901
318
325
319
FP-573
308
color mark
A
308
327
314
317
308
315
301
320
311
316
321
312
313
A
329

Ref. No.	Part No.	Description
328	Delete	
329	A-7040-333-A	CHASSIS ASSY, MECHANICAL (include FP573, 318, 319)

〈CORRECTION〉

Page. 213 ☛ : Corrected portion

ACCESSORIES & PACKING MATERIALS

INCORRECT

Part No.	Description
3-755-842-81	MANUAL, INSTRUCTION (ARABIC)(E, Tourist)
3-755-842-91	MANUAL, INSTRUCTION (CHINESE)(E)

CORRECT

Part No.	Description
3-755-842-81	MANUAL, INSTRUCTION (CHINESE)(E, Tourist)
3-755-842-91	MANUAL, INSTRUCTION (ARABIC)(E)

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RMT-703

9-973-31 9-11
9-973-31 9-81 Correction-1
9-973-31 9-91 Supplement-1

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English
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